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FINAL TANK 45 CLOSURE ASSESSMENT REPORT TANK FARM 4

NAVAL EDUCATION AND TRAINING CENTER NEWPORT, RHODE ISLAND

REMEDIAL ACTION CONTRACT (RAC) CONTRACT NO. N62472-94-D-0398 DELIVERY ORDER NO. 0013

Submitted to:
Northern Division
Environmental Branch, Code 18
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JANUARY 1999 (R1)

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1.0 SITE BACKGROUND

1.1 INTRODUCTION

Foster Wheeler Environmental Corporation, prepared this Tank 45 Closure Assessment Report summarizing the investigation and closure activities conducted at Tank 45, located at Tank Farm 4 at the Naval Education and Training Center (NETC) in Newport, Rhode Island. Foster Wheeler Environmental Corporation is under contract to the Navy to carry out closure activities at Tank 45. This Assessment has been written by Foster Wheeler Environmental Corporation to satisfy the Rhode Island Department of Environmental Management (RIDEM) Regulation DEM-DWM-UST05-93 Section 15.10, as detailed by the July 1992 RIDEM guidance document entitled: Department of Environmental Management UST Closure Assessment Guidelines. This report was prepared at the request of the United States Navy, Northern Division (NORTHDIV) of the Naval Facilities Engineering Command (NAVFAC) under Delivery Order No. 0013 of the Remedial Action Contract N62472-94-D-0398.

The primary objective of this Assessment is to provide sufficient evidence to conclude whether or not a leak or a release has occurred from Tank 45 and to provide documentation necessary to complete a permanent underground storage tank (UST) closure, consistent with RIDEM regulations. The Assessment objectives were met by providing the field screening data of the soil samples collected during excavation actives and an inspection of Tank 45 after the cleaning was completed and using this data to determine if oil stored in Tank 45 has impacted the environment.

B&R Environmental (as Halliburton NUS Corporation) conducted a preliminary assessment of Tank Farm 4 between October 1994 and March 1995, to evaluate the impacts of past activities on soil and groundwater in the immediate vicinity of slected on-site facilities, including twelve large USTs. That information serves as the supporting documentation necessary to complete permanent closures of the 12 USTs evaluated in the assessment, and provides general information about Tank Farm 4 for this report.

This section presents background information concerning Tank 45, including site location, site description, site history, and construction details of structures pertinent to this investigation. A summary of the site geology is also presented in this section. Finally, the technical approach and the investigation and analytical methods are discussed.

1.2 LOCATION

Tank 45 is located in Tank Farm 4 of NETC Newport, which is located in the Towns of Newport, Middletown, and Portsmouth, Rhode Island, approximately 25 miles southeast of Providence (Figure 1-1). Tank Farm 4 is situated at the northern portion of NETC-Newport, in Portsmouth (Figure 1-2). Tank 37 is located in the northern portion of Tank Farm 4 (Figure 1-3).

Tank Farm 4 is bordered by the Defense Highway to the north/northwest; Norman's Brook to the southwest; residential property to the southeast; and undeveloped woodlands to the north/northeast.

1.3 SITE DESCRIPTION

Tank Farm 4 is accessed from Defense Highway; it occupies approximately 90 acres and contains 12 USTs, numbered 37 through 48. These tanks were used to store virgin heavy fuel oil (no. 6 bunker oil). Several tanks were reportedly also used to store no.2 heating oil during the mid-1970s. Access to Tank Farm 4 is unrestricted. An unsecured gate is drawn across the entrance. A paved road leads into the tank farm, passing between the tanks in a loop.

On-site structures include the remnants of a building and a decommissioned electrical substation. Ground elevations across Tank Farm 4 range between 46 feet and 111 feet above mean low water level (mlw). Topography gradually slopes to the west/southwest, toward Narragansett Bay. The central portion of the

tank farm is vegetated with tall grass, dense brush, and trees. Dense brush and woodlands cover the perimeter areas of the tank farm. Brush at each tank has been cleared from work areas.

1.4 SITE HISTORY

In 1941, the U. S. Navy began construction of five tank farms at NETC to store fuel oils and other petroleum products to supply warships. Tank Farm 4 was used to store fuel oil from World War II until it was abandoned in the mid-1970s. For a brief period, from 1974 to 1978, three to four unidentified tanks were reportedly leased to Northeast Petroleum to store No. 2 heating oil. At the end of the lease period Northeast did not require the storage capacity and terminated the lease agreement. Northeast reportedly cleaned the tanks. Tank Farm 4 was not used for petroleum storage thereafter.

As a result of amendments to underground petroleum storage facilities regulations enacted by the State of Rhode Island in 1992, tanks used to store fuel oil also became subject to closure requirements. The Navy has filed an application with RIDEM to permanently close the tanks at Tank Farm 4 (see Appendix A)

1.5 PREVIOUS INVESTIGATIONS

B&R Environmental (as Halliburton NUS Corporation) conducted a preliminary assessment of Tank Farm 4 between October 1994 and March 1995, to evaluate the impacts of past site activities on soil and groundwater in the immediate vicinity of selected on site facilities, including twelve large USTs. This assessment report was the first investigation focusing on potential impacts to soil and groundwater from releases from the on-site USTs.

Previous investigation conducted at Tank Farm 4 from 1982 to 1992 focused on the reported disposal of tank bottom sludges at the tank farms. Prior investigations are mentioned here for historical information purposes only.

An initial Assessment Study (IAS) was conducted by Envirodyne Engineers, Inc. in 1982 and 1983. Loureiro Engineering Associates conducted a Confirmation Study (CS) between 1983 and 1986. Results of the CS led to the conduct of a Phase 1 Remedial Investigation (RI) as part of the Department of Defense Installation Restoration (IR) Program. The RI included multi-media environmental sampling and analysis.

1.6 SUMMARY OF TANK 45 CONSTRUCTION

Tank 45 has a capacity of 60,000 barrels (standard petroleum), or approximately 2.5 million gallons. This tank was constructed in place, of reinforced concrete. Concrete in tank walls and roof has a nominal thickness of 12-inches, while the tank floor has a nominal thickness of 14-inches. Floor and wall joints were caulked at the time of construction. The outside diameter of the tank is 119 feet; the side measures 36 feet from the bottom of the footing to the top of the roof.

The Tank 45 construction sequence began by stripping the soil overburden, and then blasting and excavating between 10 and 30 feet of bedrock to create a steep walled bedrock "socket" in which the tank was built. The tank bottom was then placed 10 to 30 feet below the original bedrock surface as described in the following paragraph. Following tank completion, the annular space between the tank wall and the bedrock was backfilled with crushed bedrock and other locally derived material. Coarse to fine grained material were used, resulting in a general graded backfill with coarse bedrock at the bottom, and finer bedrock at the top. After backfill operations were completed, the tank top was covered with similar fill material.

The tank floor lies on a flat bedrock surface that has been leveled by filling depressions with cement. A 12-inch diameter reinforced concrete perforated drain pipe is embedded in gravel surrounding the base of the tank. Groundwater that infiltrates the pipe can be pumped out of the system, thus managing the water table elevation and limiting buoyant forces on the tank. The drain system is termed a ring-drain.

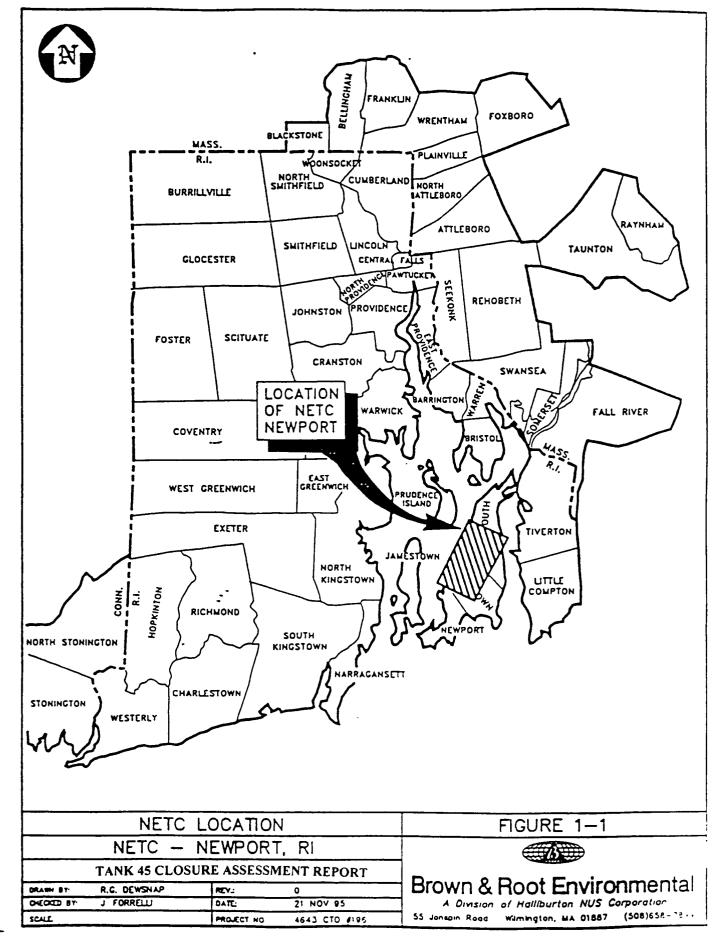
1.7 UNDERGROUND UTILITIES

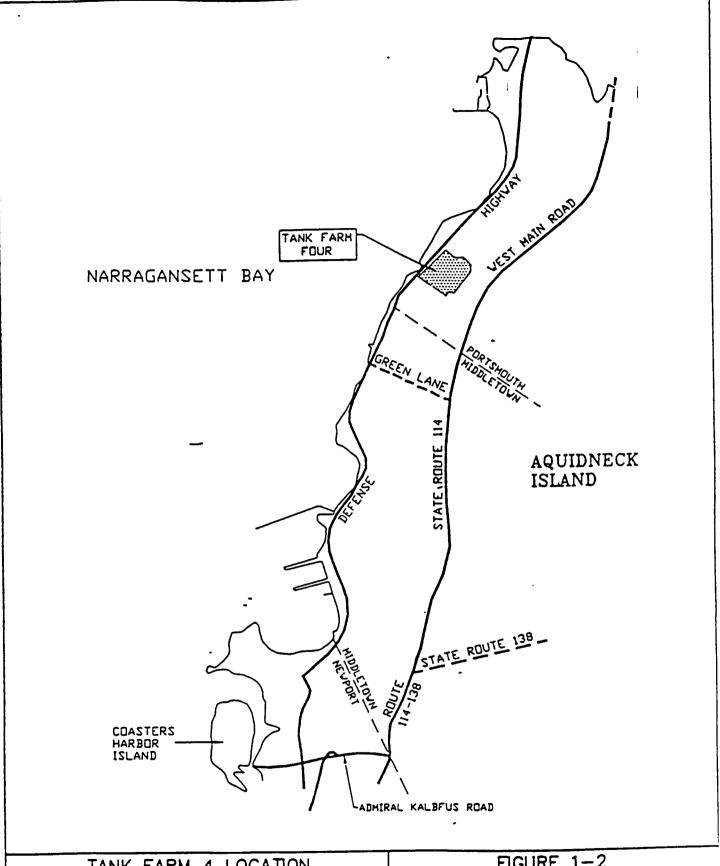
Underground utilities consist of water, electricity, and telephone service. The exact location of the utilities could not be confirmed by base Digsafe services. Also, the existence of the telephone network shown on base maps could not be confirmed.

The utility lines to Tank 45 are insulated direct burial cable and are buried 5 to 7 feet below ground surface. Consequently, these utilities would be located above the ground water table and therefore would not act as a preferential migration pathway.

1.8 GEOLOGY

The NETC site, including Tank Farm 4, is located in the southeastern portion of Narragansett Basin. The basin is underlain by Pennsylvanian age non-marine sedimentary and metamorphic rocks, including the Rhode Island Formation. Bedrock at the site is reported to be a weathered shale; phyllites were also observed at borehole refusals. Overburden material consist of unconsolidated glacial sediments ranging from gravel to silt, as well as glacial till. Soil thickness at the tank farm is variable, and is estimated to be no more than 45 feet thick. Soil descriptions from preliminary Closure Assessment investigations indicate the presence of extensive fill materials in the vicinity of the tank because of the widespread disturbance of native soils during tank construction

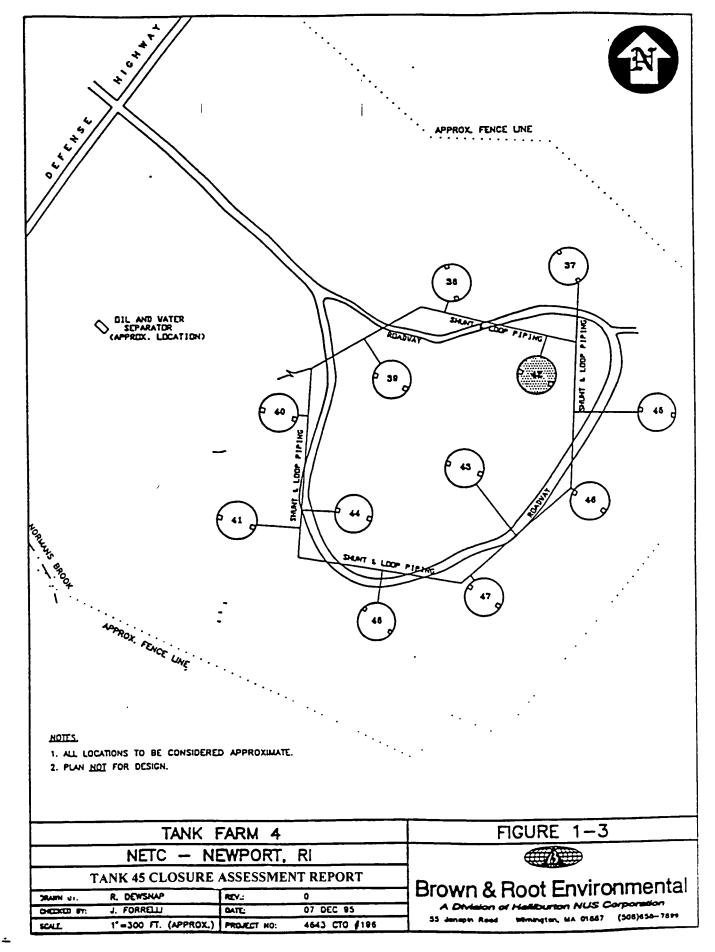




	TANK FARM	FIGURE 1-		
	NETC -			
	TANK 45 CLOSU	RE ASSESSM	ENT REPORT	- D 0 D+ 5
GRAIN ST:	R.C. DEWSNAP	REV.	0	🗂 Brown & Root Envii
0€000 87°	J. FORRELLI	A Division of Hallburton NUS		
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S Corporation (508)658-7899 667



2.0 CLOSURE ACTIONS

2.1 MOBILIZATION

Foster Wheeler Environmental Corporation was retained by the Navy to conduct tank closure activities at Tank Farm 4. Following the submittal of all pre-construction documents, Foster Wheeler Environmental Corporation commenced mobilization activities at Tank Farm 4 on May 20, 1996. Consistent with the tank closure work plan and specification, a support zone was set up, the site was cleared and grubbed, and temporary fencing was erected to encompass each tank work area.

Tank specific closure activities began on June 3, 1996, by excavating and exposing of the tank tops. Two entry ports (7 feet by 9 feet and 9 feet by 13 feet) were subsequently cut and removed from each tank top to provide access to the tank interior for personnel and equipment. Tank access lid excavation and access port cutting activities were completed by July 10, 1996. Subsequent to tank lid excavation activities, the soil cover for the pump room chamber associated with each tank was excavated and the chamber's lid was exposed.

Tank gauging was conducted by Foster Wheeler Environmental Corporation in June of 1996. For tank gauging activities, the total overall depth of liquids in each tank was measured. The liquid phase was assumed to be oil/water/sludge, and an attempt was made to determine the thickness, or depth, of each phase of material. Volume estimates for Tank 45 are presented below.

PHASE	VOLUME (gallons)
Oil	0
Water	756,000
Sludge	0
Total	756,000

A sample of the oil and sludge layer was analyzed for off-site disposal characterization purposes. The analytical results for the oil and sludge layer are included In Appendix B.

2.2 SOIL EXCAVATION-

During excavation activities conducted to expose the tank tops and pump chamber, all soils were visually observed and screened using a flame-ionization detector (FID). The Foster Wheeler Environmental Corporation soil management plan for Tank Farm 4 activities states that all soils having a FID reading of less than 10 ppm are considered non-impacted and will be reused on site. None of the excavated soils registered FID readings greater than 10 ppm and will be reused in accordance with the soil management plan.

2.3 TANK CONTENTS REMOVAL AND STORAGE

Tank contents removal activities began on July 20, 1996 and were completed by July 25, 1996. The water phase was pumped from the tank directly into Tank 43 for treatment and discharge to the POTW. When all water was removed the oil/sludge layer was pumped to 21,000 gallon above ground frac tanks. The oil/sludge was pumped onto transporters and disposed of off site at an approved facility. Refer to Appendix C for disposal bill of Ladings. All wastewater generated during the tank cleaning was also pumped to Tank 43, including groundwater generated by ring drain pumping operations.

2.4 TANK CLEANING

Tank 45 interior surface cleaning operations commenced on July 29, 1996. The cleaning method employed consisted of washing the treated surface with high pressure hot water utilizing a diluted water based industrial degreaser / cleaner solution. Pertinent features of the cleaning units slected for use include operating temperatures up to 240 degrees Fahrenheit and operating nozzle pressures up to 3000 psi. Degreaser vendor information may be found in Appendix D.

2.5 PIPING, EQUIPMENT, AND DEBRIS REMOVAL

During Tank 45 surface cleaning operations, all piping and equipment was dismantled and decontaminated with high pressure hot water. All decontaminated, salvageable materials were sent to an approved scrap yard. All other debris, including spent personnel protective equipment from tank cleaning operations, is currently being disposed of off site at an approved disposal facility. Manifests shipments to the facility are included in Appendix E.

2.6 TANK CLOSURE

On January 23, prior to tank inspection (see section 3.2) and after the pipes were cleaned and dismantled, blind flanges were installed at the pipes entrances into the tank. Three pipe entrances were identified and blind flanged. These entrances are identified as follows:

One 16-inch line extending from the bottom of the pump room into the bottom of the tank

One 6-inch line extending from the bottom of the pump room into the bottom of the tank

One 10-inch line extending from the top of the pump room into the top of the tank

All blind flanges were installed on the tank's exterior side, within the pump room, and tank ballasting has been completed.

2.7 TANK DEMOLITION

Concrete chip samples were taken from the interior floor, column and walls of this tank on 7-7-97 and analyzed for TCLP Metals, VOC's, SVOC's and TPH. The results are included as Appendix J. 15 Test Pits were excavated around the perimeter of the Tank 45. The Test Pits were excavated to insure that the fill located on and around the tank was not contaminated. The 15 Test Pits were equally spaced around the tank with Test Pit No. 1 located on the North side of the tank. The Test Pits were excavated to the tank top and extended the same distance out from the tank. A compost sample was collected on 7-10-97 and analyzed for VOC's, SVOC's, RCRA 8 Metals and TPH. The results for sample TP-TK45 are included as Appendix K. The tank had 15 feet of clean sand placed into the bottom and on 10-1-97 at 17:42 the tank top was imploded. The remaining hole was backfilled with off-site borrow material. A copy of the blast report is included as Appendix L

3.0 TANK CONDITION

3.1 STRUCTURAL INSPECTION

On January 23, 1997 Mark Gouveia of Foster Wheeler Environmental Corporation inspected the tank's interior to assess the structural integrity of the tank. During the inspection several small cracks were identified (less than 1/8 inch wide) on the tank floor. The columns appeared in good condition. Walls are clean and free of cracks. Documentation regarding the inspection may be found in Appendix F.

3.2 CLOSURE INSPECTION

Tank 45 was formally inspected on January 24, 1997. Participating in the inspection were:

RIDEM

Daniel Russell - Division of Waste Management Paul Kulpa - Division of Site Remediation

NETC

Ray Roberge - Code 40E, Environmental

Foster Wheeler Environmental

Jon Cary - Site Manager

Roger Beauregard - Site Quality Control

During the inspection, all participants entered the tank's interior and viewed the cleaning surfaces. At the post inspection meeting, all participants agreed that the interior surface cleaning results were satisfactory.

3.3 PIPING INSPECTION

On January 23, 1997 an inspection was conducted for all pipe runs extending into the tank's interior from the pump room. Three pipe runs, each approximately ten feet long, were identified and inspected. The piping was inspected for cleanliness and the condition of each pipe run was noted.

Participating in the inspection were:

Mark Gouveia, Foster Wheeler Environmental- Site Engineer Roger Beauregard, Foster Wheeler Environmental- Site QA/QC

Inspection observations are as follows:

One 10-inch pipe, located at the top of the pump room was identified and inspected. The pipe interior was clean and in good condition. No scaling, cracks, or holes were observed.

One 16-inch pipe, located at the bottom of the pump room was identified and inspected. The pipe interior was clean and in good condition. No scaling, or holes were observed.

One 6-inch pipe, located at the bottom of the pump room was identified and inspected. The pipe interior was clean and in good condition. No scaling, or holes were observed.

3.4 PUMP ROOM INSPECTION

On February 11, 1997 an inspection of the pump room was conducted for cleanness and over all condition of the walls and floors of the pump room.

Participating in the inspection are as follows:

Mark Gouveia, Foster Wheeler Environmental- Site Engineer

Roger Beauregard, Foster Wheeler Environmental- Site QA/QC

Jon Cary, Foster Wheeler Environmental- Site Manager

During the inspection all participants entered the pump room and viewed the clean surfaces. At the completion of the inspection all participants agreed that the pump room was clean and in good condition.

4.0 DESCRIPTION OF SOIL CONDITIONS SURROUNDING TANK 45

Drilling activities conducted as part of the Preliminary Closure Assessment were completed at Tank 45 on October 15, 1994 (HNUS 1995). At soil boring B-45, continuous split-barrel sampling was conducted from 26 feet below the ground surface (bgs) to refusal, at approximately 40 feet. The boring was completed as groundwater monitoring well MW-122.

The upper 26 feet of the boring was not examined. Soil sampling was initiated at 26 feet based on information suggesting that the water table was approximately this deep. It was presumed that petroleum releases above the water table would migrate vertically downward and be detected in soil and groundwater.

A generalized description of the subsurface follows. The interval from 26 to 36 feet bgs is comprised of sandy silt. From 36 to 38 feet bgs subangular gravel was observed, during the advance of the soil boring petroleum staining was detected on gravel's at approximately 33 feet bgs. Gravel's at 34 to 40 feet bgs were heavily stained with petroleum. A PID detection of 90 PPM was noted over the interval from 28 to 30 feet bgs. The interval from 34 to 40 feet bgs is comprised of petroleum impacted sandy gravel. Bedrock reportedly consists of gray, highly weathered to competent, slightly metamorphosed shale with quartz lenses. Tank Farm 4-B-45 was not advanced into bedrock. Boring logs and soil descriptions are presented in Appendix G.

5.0 SOIL SAMPLE ANALYTICAL DATA SUMMARY

Consistent with the usage of Tank 45 as storage for virgin No. 6 fuel oil, the Preliminary Closure Assessment investigation at this UST focused on evaluating soils and groundwater for the presence of petroleum components. Soil samples were visually inspected for the presence of petroleum, screened for the presence of petroleum with PIDs and FIDs (as well as an Ensys Petro Risc petroleum field screening immunoassay kit), and subjected to laboratory analysis. Visibly stained soils were not field screened for TPH (using the immunoassay method) because the TPH concentration would exceed the 100 ppm standard, the highest concentration of TPH that could be detected by the screening analysis.

The following section decribes the analytical data findings of the investigation activities conducted at this location. Subsurface soils were collected and sent to laboratories to be analyzed for volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), total petroleum hydrocarbon (TPH) extractable, and eight RCRA metals.

From boring B-45 two subsurface soil samples were taken for laboratory analysis. Samples B453234 and B453436 were collected from depths of 32 to 34 feet bgs, and 34 to 36 feet bgs, respectively. They consisted of silty gravel. Each sample exhibited a petroleum sheen. The MW-122 groundwater sample was collected from the midpoint of the well screen, approximately 37 feet bgs. No evidence of petroleum was observed during groundwater collection.

Positive laboratory analytical results are reported in Table 5-1 and presented on Figure 5-2. The averaged value of duplicate samples is reported in the summary table. In instances when samples have been reanalyzed the maximum detected concentration of each compound or metal is reported. Laboratory analytical results are presented in Appendix H. Results for ground water are discussed in greater detail in section 6.0.

5.1 VOLATILE ORGANIC COMPOUNDS (VOCs)

No detection limits were exceeded in subsurface sample B453234. Toluene and 1,2,4,- trichlorobenzene were detected at a concentration of 7 micrograms per kilogram and 70 micrograms per kilogram in subsurface soil sample B453436. These analytes are halogenated aromatic hydrocarbons.

TABLE 5-1 POSITIVE CONTAMINANT DETECTIONS IN SOIL AND GROUNDWATER TANK 45 CLOSURE ASSESSMENT REPORT NETC NEWPORT, RHODE ISLAND

TABLE 3-9 POSITIVE CONTAMINANT DETECTIONS IN SOIL AND GROUNDWATER TANK 45 SUMMARY PRELIMINARY CLOSURE ASSESSMENT REPORT TANK FARMS 4 & 5 NETC - NEWPORT, RHODE ISLAND

MEDIA	BORING NO. OR WELL NO.	DEPTH OR SCREEN INTERVAL	CONTAMINANT	CONCENTRATION	REGULATORY STANDARD(S)	EXCEEDS STANDARD(S) (YES/NO)
Soil	B45	32-34	Fluorene	52 μg/kg	None	N/A
Soil	B45	32-34	Phenanthrene	130 µg/kg	None	N/A
Soil	B45	32-34	Pyrene	59 μg/kg	None	N/A
Soil	B45	32-34	Bis(2-ethylhexyl)phthalate	830 µg/kg	None	N/A
Soil	B45	32-34	Arsenic	9.0 mg/kg	None	N/A
Soil	B45	32-34	Barium	14.4 mg/kg	None	N/A
Soil	B45	32-34	Cadmium	1.8 mg/kg	None	N/A
Soil	B45	32-34	Chromium	11.0 mg/kg	None	N/A
Soil	· B45	32-34	Lead	8.0 mg/kg	150 ppm (3) 400 ppm (4)	No
Soil	B45	32-34	TPH-Bunker Oil	1200 mg/kg	300 ppm (6) TPH	Yes
Soil	B45	34-36	Toluene	7 μg/kg	None	N/A
Soil	B45	34-36	1,2,4-Trichlorobenzene	70 <i>μ</i> g/kg	None	N/A
Soil	B45	34-36	2-Nitroaniline	56 μg/kg	None	N/A
Soil	B45	34-36	Diethyl phthalate	1000 μg/kg	None	N/A

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TABLE 3-9 (CONTINUED) POSITIVE CONTAMINANT DETECTIONS IN SOIL AND GROUNDWATER FOSITIVE CONTAMINANT DETECTIONS IN SOIL AND GROSS TANK 45 SUMMARY
PRELIMINARY CLOSURE ASSESSMENT REPORT
TANK FARMS 4 & 5, NETC - NEWPORT, RHODE ISLAND
PAGE 2

	MEDIA	BORING NO. OR WELL NO.	DEPTH OR SCREEN INTERVAL	CONTAMINANT	CONCENTRATION	REGULATORY STANDARD(S)	EXCEEDS STANDARD(S) (YES/NO)
	Soil	B45	34-36	Fluorene	600 μg/kg	None	N/A
	Soil	B45	34-36	Phenanthrene	390 μg/kg	None	N/A
	Soil	B45	34-36	Anthracene	390 μg/kg	None	N/A
	Soil	B45	34-36	Di-ni-butyl phthalate	75 µg/kg	None	N/A
3	Soil	B45	34-36	Fluoranthene	39 μg/kg	None	N/A
	Soil	B45	34-36	Pyrene	1300 µg/kg	None	N/A
	Soil	B45	34-36	Chrysene	390 <i>μ</i> g/kg	None	N/A
	Soil	B45	34-36	Bis(2-ethylhexyl)phthalate	110 <i>μ</i> g/kg	None	N/A
	Soil	B45	34-36	Arsenic	11.4 mg/kg	None	N/A
	Soil	B45	34-36	Barium	9.2 mg/kg	None	N/A
	Soil	B45	34-36	Cadium	2.05 mg/kg	None	N/A
	Soil	B45	34-36	Chromium	10.7 mg/kg	None	N/A
	Soil	B45	34-36	Lead	7.65 mg/kg	150 ppm (3) 400 ppm (4)	No
	Soil	B45	34-36	TPH-Bunker Oil	11,000	300 ppm (6) TPH	Yes

TABLE 3-9 (CONTINUED) POSITIVE COIST.....
TANK 45 SUMMARY
PRELIMINARY CLOSURE ASSESSMENT REPORT
TANK FARMS 4 & 5, NETC - NEWPORT, RHODE ISLAND
PAGE 3 **POSITIVE CONTAMINANT DETECTIONS IN SOIL AND GROUNDWATER**

	MEDIA	BORING NO. OR WELL NO.	DEPTH OR SCREEN, INTERVAL	CONTAMINANT	CONCENTRATION	REGULATORY STANDARD(S)	EXCEEDS STANDARD(S) (YES/NO)
	Groundwater	MW122	34-39	Fluorene	16 μg/L	None	N/A
	Groundwater	MW122	34-39	Phenanthrene	15 μg/L	None	N/A
	Groundwater	MW122	34-39	Pyrene	15 μg/L	None	N/A
د	Groundwater	MW122	34-39	Arsenic	656 μg/L	50 μg/L (1), (2), (5)	Yes
3-85 -	Groudwater	MW122	34-39	Barium	1530 μg/L	2000 μg/L (1) & (2) 1000 μg/L (5)	No (1) (2) Yes (5)
	Groundwater	MW122	34-39	Chromium	496 μg/L	100 μg/L (1) & (2) 50 μg/L (5)	Yes
	Groundwater	MW122	34-39	Lead	722 μg/L	15 μg/L (1) & (2) 50 μg/L (5)	Yes
	Groundwater	MW122	34-39	Mercury	0.52 μg/L	2 μ _g /L (1), (2), (5)	No
	Groundwater	MW122	34-39	Silver	29.0 μg/L	50 μg/L (5)	No

TABLE 3-9 (CONTINUED) **POSITIVE CONTAMINANT DETECTIONS IN SOIL AND GROUNDWATER TANK 45 SUMMARY** PRELIMINARY CLOSURE ASSESSMENT REPORT TANK FARMS 4 & 5, NETC - NEWPORT, RHODE ISLAND PAGE 4

Legend:

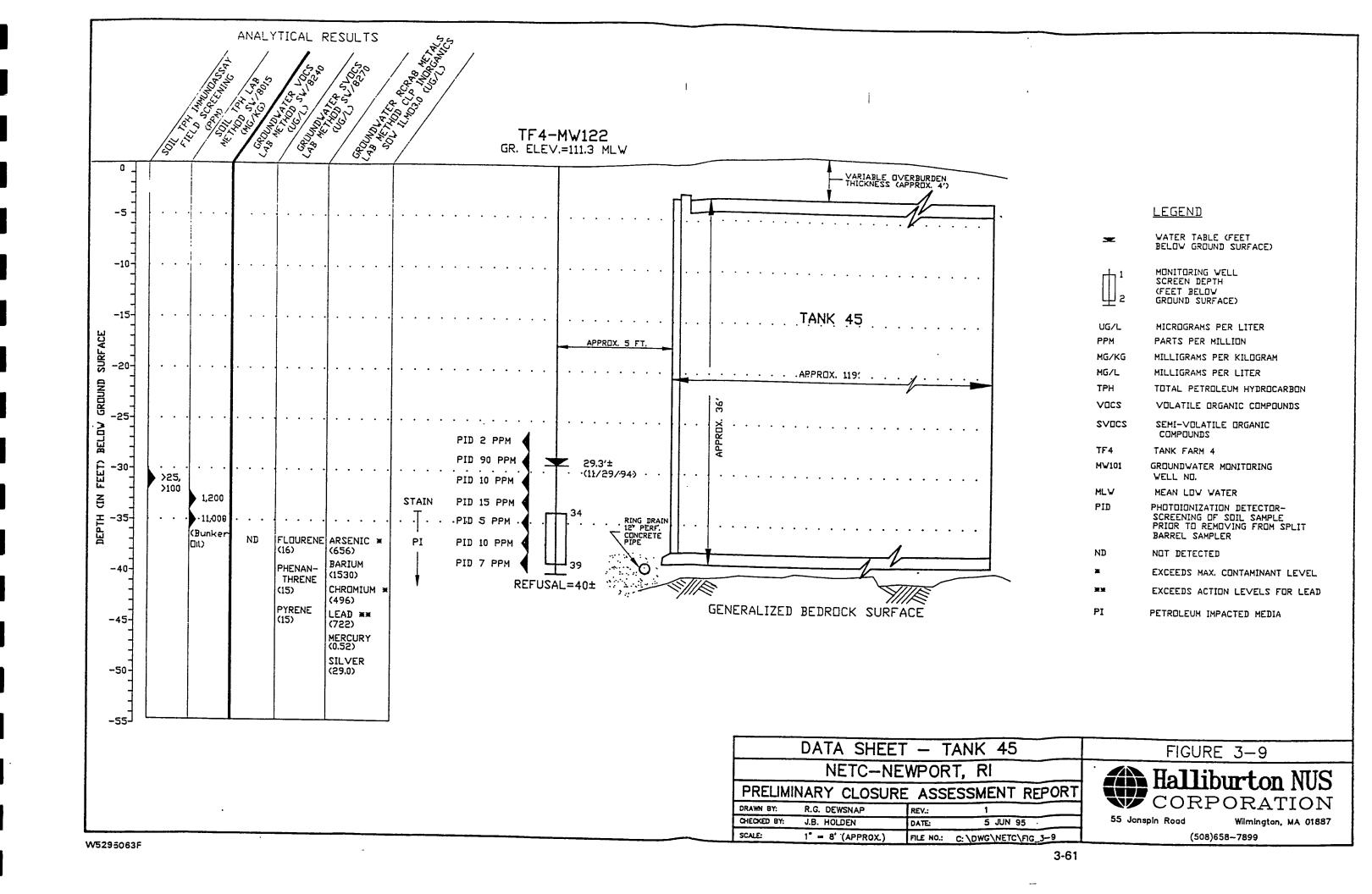
ppm-parts per million μg/L-micrograms per liter mg/kg-milligrams per kilogram μg/kg-micrograms per kilogram N/A-Not Applicable

Notes:

3-66

- 1) U.S. EPA Drinking Water Regulations and Health Advisories, EPA 822-R-94-001, May 1994.
- 2) State of Rhode Island Department of Environmental Management, Rules No. 12-100-006, Rule and Regulations for Groundwater Quality, Section 10, July 1993.
- 3) Rhode Island Department of Health - Environmental Lead Program, [R23-24.6-PB], Rules and Regulations for Lead Poisoning Prevention, February 1992 (with amendments).
- 4) OSWER Directive 9355.4-12- Revised Interim Soil Lead Guidance for CERCLA Sites and RCRA Corrective Action Facilities.
- 5) 40 CFR Part 264 - Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities, Subpart F. Sections 264.92 - 264.94, July 1991.
- State of Rhode Island criteria established for clean-up of TPH in non-sensitive environmental areas. 6)
- MW122 was installed in boring location B45.
 - Sample valves were averaged with applicable duplicates.
 - In cases where samples were reanalyzed, the maximum detected concentration was reported.
 - For comparative purposes only, mg/kg unit designations and ppm unit designations were considered to be equivalent.
 - For comparative purposes only, Regulatory Standard unit designations have been converted to the unit of the detected contaminant. Regulatory Standards are typically expressed in milligrams per liter (mg/l).

FIGURE 5-1 TANK 45 DATA SHEET TANK 45 CLOSURE ASSESSMENT REPORT NETC NEWPORT, RHODE ISLAND



5.2 SEMI-VOLATILE ORGANIC COMPOUNDS (SVOCs)

Flourene, phenanthrene, pyrene, and bis(2-ethylhexyl)phthalate [BEHP] were detected in both subsurface samples, at concentrations ranging from 52 micrograms per kilogram to 1,300 micrograms per kilograms. Anthracene, Flouranthene, Chrysene, 2-nitroaniline, diethyl phthalate, and di-n-butyl phthalate were detected in subsurface sample B453436 in concentrations ranging from 39 micrograms per kilograms to 1,000 micrograms per kilograms.

Flourene, Phenanthrene, Pyrene, Anthracene, Flouranthene, and chysene represent polynuclear aromatic hydrocarbons (PAHs), typical from coal tar. They are also common organic chemicals identified in fuel oil.

Diethyl phthalate, di-n-butyl phthalate, and BEHP are typically used as plasticizers in the manufacturing of PVC and other plastic, including plastics used in laboratories.

5.3 RCRA METALS

Arsenic, barium, cadmium, chromium, and lead were detected in both of the subsurface soil samples collected from B-45. Concentrations of these metals ranging from 8.0 to 14.4 milligrams per kilogram were reported. The source of these metals has not been evaluated. However, metals are not typically associated with storage of virgin fuel oil.

5.4 TOTAL PETROLEUM HYDROCARBONS (TPH)

A concentration of 1,200 mg/kg was detected by laboratory analysis in sample B453234. This was identified as bunker fuel oil. A high concentration of TPH 11,000 mg/kg was detected by laboratory analysis in soil sample B453436. This was also identified as bunker fuel oil.

One subsurface soil sample was collected for TPH immunoassay field screening from 30 to 32 feet bgs. TPH screening results were greater than 100 ppm at 30 to 32 feet bgs (Figure 5-1).

6.0 SITE GROUNDWATER DESCRIPTION

Water levels in Tank Farm 4 monitoring wells were measured to a hundredth-of-a-foot accuracy using an electronic measuring device. The relative elevation of each monitoring well was determined by a land surveyor registered in the State of Rhode Island, and the depth of the water table was established using measurements made from November 2 to 29, 1994. From these data, groundwater flow direction was characterized and a water table map (Figure 6-1) was created for Tank Farm 4. Groundwater generally flows west-southwest toward Narragansett Bay and is slightly affected by Norman's Brook

MW-122 is approximately 5 feet from the perimeter of Tank 45 and was installed slightly crossgradient to the tank. It is assumed that petroleum resulting from a release would accumulate in the ring drain. A well installed in the ring drain would therefore serve as a monitoring point for a release of petroleum product from this tank. The MW -122 well screen was set 34 to 39 feet bgs to correspond with the estimated depth of the ring drain, based on available information, the ring drain typically extends from the bedrock surface to a point approximately 1 to 2 feet above the tank bottom. Refusal was interpreted as the bedrock surface. Therefore the ring drain was estimated to be approximately 38 feet bgs. The well boring log is presented in Appendix G.

The depth to groundwater table was 25 46 feet bgs on May 10, 1996 Seasonal and precipitation effects on groundwater levels have not been evaluated at the site Therefore, this single measurement may not be representative of the actual groundwater table.

Groundwater samples were collected from MW-122 and were analyzed for VOC's. SVOC's and the eight RCRA metals. The results of these are summarized below and presented in Table 5-1 and Appendix H

6.1 VOLATILE ORGANIC COMPOUNDS (VOC's)

No analytes exceeded detection limits in the groundwater sample collected from MW-122.

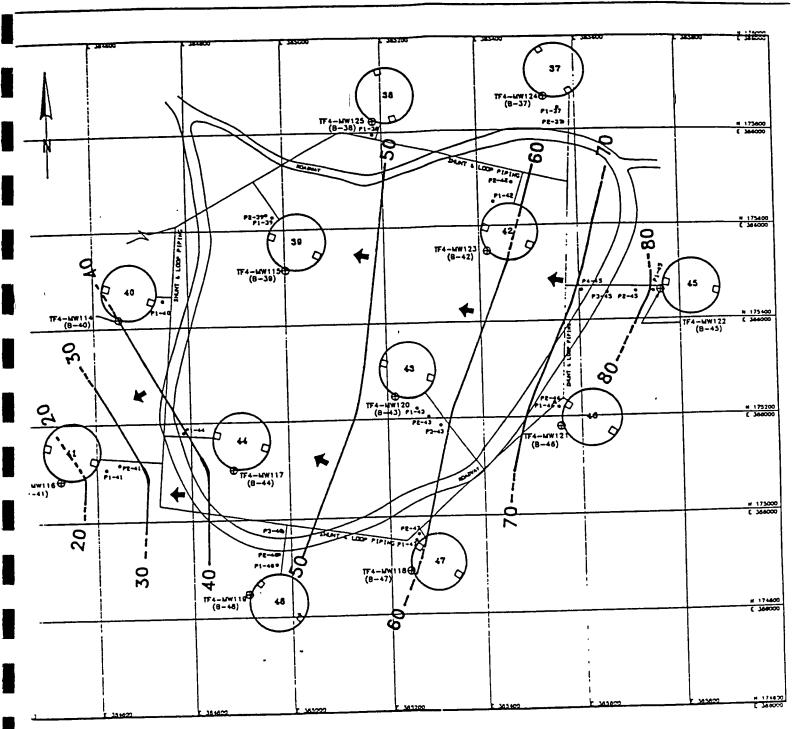
6.2 SEMI-VOLATILE ORGANIC COMPOUNDS (SVOC'S)

Three SVOCs, ranging in concentration from 15 micrograms per liter to 16 micrograms per liter were detected in groundwater sample collected from MW-122. These compounds include. fluorene, phenanthrene, and pyrene.

6.3 RCRA METALS

Arsenic, barium, lead, mercury, and silver were detected in groundwater samples collected from MW-122 The source of these metals has not been evaluated

FIGURE 6-1 TANK FARM 4 GROUNDWATER CONTOURS TANK 45 CLOSURE ASSESSMENT REPORT NETC NEWPORT, RHODE ISLAND



TANK FARM 4

CHECKED BY	R G DEWSNAP K JALKUT	DATE.	5 JUN 95 :\DWG\NETC\TNK_FM4 DWG	55 Jonspin Road (508)	Wilmington, MA 1 1 1 (658-7899
T	ANK 45 CLOSURI	E ASSESSMEN'	~~	PORATION	
	NETC-N	IEWPORT,	Hallil	ourton NUS	
MONIT	ORING WELL	S AT TA		E 2-1	

7.0 ANALYTICAL SAMPLE COLLECTION AND HANDLING

Soil and groundwater samples were collected and analyzed to Naval Facilities Engineering Services Center requirements. All environmental samples collected as part of this tank closure were stored and shipped in accordance with the chain-of-custody procedures outlined in Foster Wheeler Environmental Corporation's Quality Assurance/Quality Control Plan.

Sample chain-of-custody forms are presented in Appendix I. Sample analyses were conducted by Ceimic Laboratories of Narragansett, Rhode Island and Nytest Environmental of Port Washington, New York. Analytical results are presented in Appendix H.

8.0 SITE WELLHEAD PROTECTION STATUS

Tank 45 is not within a designated wellhead protection area.

9.0 SITE GROUNDWATER CLASSIFICATION AND USE

The groundwater beneath Tank 45 is classified by RIDEM as "GA". GA classified groundwater is primarily located in areas or in the vicinity of water that is a source of potable water, or areas which will adversely affect other beneficial uses of that groundwater, such as recreational, agricultural, and industrial uses and the preservation of fish and wildlife habitat through the maintenance of surface water quality. Groundwater that is classified as "GA" is suitable for drinking water use without treatment.

Tank Farm 4 and all land hydraulically downgradient of the tank farm is owned by the federal government. A review of Newport Water Department records by HNUS in March 1995 indicates that no private or public potable water wells are located on or in the vicinity of the site.

10.0 POTENTIAL RECEPTORS

The potential receptor of a release from Tank 45 is Narragansett Bay. Tank Farm 4 groundwater generally flows west-southwest toward Narragansett Bay and shallow groundwater in the southern portion of the site may flow toward Norman's Brook. Petroleum dissolved in and migrating with groundwater may discharge to both of these surface waters. No private wells or basements that could be affected by a release from Tank Farm 4 are known to exist (see section 9.0).

11.0 FINDINGS AND CONCLUSIONS

11.1 FINDINGS

Tank 45 has been emptied of its contents, cleaned, demolished, and backfilled. This tank has passed both the Navy structural integrity inspection and RIDEM post-closure inspection for completeness of oil removal. Following the inspections the tank was demolished and backfilled to final closure.

A heavy petroleum staining was observed on soils collected 34 to 40 feet bgs, and on the interpreted bedrock surface, at refusal.

Laboratory analytical results of the site soils and groundwater collected immediately adjacent to Tank 45 were evaluated with respect to one or more of the following regulatory standards:

Rhode Island Department of Health Lead Poisoning Prevention Standard

U.S. EPA Revised Interim Soil Lead Guidance for CERCLA Sites and RCRA Corrective Action Facilities

Rhode Island Department of Environmental Management (RIDEM) Groundwater Quality Standard and Preventative Action Limits

U.S. EPA Safe Drinking Water Act (SDWA) Maximum Contaminant Levels (MCLs)

RCRA Groundwater Protection Standard.

Rhode Island Department of Environmental Management (RIDEM) Action Levels for TPH in Soils

The Rhode Island Department of Health "lead-free" standard (1992) for soil was used in the evaluation of the detected lead result in subsurface soil samples B453234 and B453436. This standard, 150 milligram per kilogram, is designed for the protection of children in a residential setting. Because anticipated future land use of Tank Farm 4 is not for residential purposes, this standard is used for comparative purposes only. The U.S. EPA guidance (1994a) for CERCLA Sites and RCRA Corrective Action Facilities was also used to evaluate the detected lead result. This directive recommends a 400 ppm screening level for lead in soil designated for residential land use. For the primary reason stipulated above, this guidance is also used for comparative purposes only. The B453234 and B453436 soil lead concentrations (8.0 mg/kg and 7.65 mg/kg) do not exceed either of these standards.

The detection's of 1,200 mg/kg and 11,000 mg/kg in subsurface soil samples B453234 and B453436 exceed the RIDEM action level. Where detected, VOC, SVOC, and metals soil concentrations were below applicable standards.

The arsenic, barium, chromium, lead, mercury and silver concentrations detected in the MW-122 groundwater sample was evaluated with respect to MCLs and RIDEM groundwater standards (RIDEM 1993; U.S. EPA 1994a). These metals exceed both standards as shown in table 3-9. High turbidity levels in groundwater may have contributed to the elevated concentrations of metals.

Groundwater beneath Tank Farm 4 has been assigned a "GA" classification, which identifies it as a groundwater resource that is suitable for drinking water use (RIDEM1993). When available, RIDEM GA Groundwater Standards are used for comparison. In cases where RIDEM has not established standards. SDWA "MCL's for Chemicals Detected in Groundwater" are used for comparison.

11.2 CONCLUSIONS

Based on an evaluation of the above data, a petroleum release did occur at Tank 45. The presence of petroleum saturated oil at depth, from 34 to 40 feet bgs adjacent to the tank and groundwater samples taken in the vicinity of the tank, indicate that leaks of fuel oil from the tank has likely occurred.

Heavier oils like No.6 fuel oil are less soluble and will tend to migrate through the aquifer as free product, but are relatively immobile due to high viscosity and low solubility. Groundwater is probable not a significant migration pathway for heavy fuel compounds released from the tank.

A site investigation should be conducted in accordance with RI UST regulations.

REFERENCES

REFERENCES

Halliburton NUS Corporation, 1995b. "Preliminary Closure Assessment Report of Tank Farms 4 and 5, Naval Education and Training Center, Newport Rhode Island" March 1995.

Halliburton NUS Corporation, "Site Investigation Report Tanks 38, 42, 45, and 48 Tank Farm 4, Naval Education and Training Center, Newport Rhode Island" February 1996.

Rhode Island Department of Environmental Management, 1992. "UST Closure Assessment Guidelines"

Brown and Root Environmental "Tank 42 Closure Assessment Report Tank Farm 4, Naval Education and Training Center, Newport, Rhode Island" December 1995.

Rhode Island Department of Environmental Management, 1993. "Rules and Regulations for Groundwater Quality", Rule No. 12-100-006

Rhode Island Department of Health, 1992. "Rules and Regulations for Lead Poisoning Prevention, R23-24.6-PB"

U.S. EPA, 1994b. "Drinking Water Regulations and Health Advisories", EPA 822-R-94-001

APPENDIX A PERMANENT CLOSURE APPLICATION FOR UNDERGROUND STORAGE FACILITIES

I. DESCRIPTION OF TANKS TO BE CLOSED

TANK NO.	AGE	DATE LAST USED	VOLUME	CONSTRUCTION MATERIAL	STORED MATERIAL
037	4.8	79	2.500.000	Concrete	#6 Fuel Oil
038	4.8	79	2,500,000	Concrete	#6 Fuel Oil
039	4.8	79	2,500,000	Concrete	#6 Fuel Oil
040	4.8	79	2,500.000	Concrete	#6 Fuel Oil
041	4.8	79	2.500.000	Concrete	#6 Fuel Oil
042	4.8	79	2,500,000	Concrete	#6 Fuel Oil
043 (If the:	48 re are m	79 ore tanks bei	2,500,000 ng closed p	Concrete lease list on	#6 Fuel Oil attachment)
Cle	ES: osure: gistrati			_X \$75.00 PER _X \$35.00 PER	
		tanks ever h			x NO
ta	nks, wil	closure(s)hav .l there be an ace at this fa	y undergrou	leted on the nd storage ta	aforementioned nks remaining x NO
Wi	ll any r	new UST(s) be	installed o	on the site?	xNO
CLOSURE	PROCEDU	JRE (SELECT ON	JE):		
1	(Sect	ision test and ion 15.12). rial used for			
	BY A	APPROVED P LICENSED TESTE TO FILLING TH	R AND RESULT	S MUST BE SUBM	
(Note: Tan	ks to be des	vate, clean, a colished and left in ify method of	place following	tank cleaning.)	

I. DESCRIPTION OF TANKS TO BE CLOSED

TANK NO.	AGE	DATE LAST USED	VOLUME	CONSTRUCTION MATERIAL	STORED MATERIAL
044	48	79	2,500,000	Concrete	#6 Fuel Oil
045	48	79	2,500,000	Concrete	#6 Fuel Oil
046	4.8	79	2,500,000	Concrete	#6 Fuel Oil
047	48	79	2,500,000	Concrete	#6 Fuel Oil
048	48	79	2,500,000	Concrete	#6 Fuel Oil

⁽If there are more tanks being closed please list on attachment)

J. FEES:

Closure: NUMBER OF TANKS 5 X \$75.00 PER TANK = 375
Registration: NUMBER OF TANKS X \$35.00 PER TANK =

b.			ing of tank sludge or
	waste ge	nerated by cleani	ing process. List name of waste
	hauler	Tank sludges will	<u>be characterized and disposed of</u>
			o be determined. Cleaning wastes
	will be	treated on site	in water treatment facility.
		ł	
c.	Specify	whether cleaning	will take place:
	• •	_	on site_xoff-site
	i. If of	f-site.indecate	location of final tank cleaning
		Firm/Address:	
	•	. 22, 11441 000	
	+	firm which :	will transport tank(s)to site
		cated in c(i) abo	
	1	Firm/Address:	N/A
		•	
	NOTE:		TING TANK SLUDGE AND WASTE OR
			QUIRE FURTHER CLEANING MUST BE
		PERMITTED BY D	EM (DIVISION OF AIR & HAZARDOUS
		MATERIALS) AS	HAZARDOUS WASTE TRANSPORTERS.
D. V	Will tanks	s(s) be	
			disposed of x or reused?
(Note: Tanks	to be demolis	hed and left in place fol	lowing tank cleaning.)
	NOTE:	REUSE OF A TAN	K IN THE GROUND REQUIRES
		COMPLIANCE WIT	H SECTION 12.03 OF STATE UST
		REGULATIONS.	
		•	
	Location	n for final tank (s) disposal:
			•
			Tanks to be left in place
			following partial demolition
	Tf table	is to be reused,	specify.
	II Lank	is to be <u>leased</u> ,	specify.
		Droposed use:	
		trohosed ase:	
		Nama /2 3 3a = -	of intended year.
		Name/Address C	of intended user:

i

CERTIFICATION BY TANK OWNER

I certify under penalty of law that the attachments were prepared under my directordance with a system designed to a personnel property gather and evaluate Based on my inquiry of the person or por those persons directly responsible information, the information, submitte knowledge and belief, true, accurate, that there are significant penalties finformation, including the possibility of knowing violations.	ection or supervision in source that qualified the infomation submitted. ersons who manage the system, for gathering the dis, to the best of my and completed. I am aware for submitting false of fine and imprisonment for
NAME OF OWNER: (Please print) J.C. Wym	nan, Capt, CEC, USN
SIGNATURE:	
ADDRESS: NETC, PWD, Bldg 1, 1 Simonpie	tri Dr. Newport, RI 02841
TELEPHONE: 841-3841	
NOTIFICATION OF LOCAL	FIRE DEPARTMENT
CLOSURE DATE AFTER YOU HAVE CONFIRMED	THIS DATE WITH DEM.
Authorized Local Fire	Date
Department Representative	
NEMC Piers Department	841-2225
NETC Fire Department Name of Local Fire Department	Telephone Number
This signature dose not serve as notice guarantee town approval, and dose not obligations to other applicable town of deficiency or requirement which may have subject to correction under the provision.	relieve you of your officials. Any violation, ave been overlooked is also
DEM	VECC 185175
DIVISION OF BUSIN	
A. NO. OF TANKS X 75.00 = B. NO. OF TANKS X 35.00 =	
TOTAL FEE = (A) +	
FULL PAYMENT RECEIVED ON	(DATE)

SUPPLEMENT TO THE PERMANENT CLOSURE APPLICATION FOR USTS

This supplement must accompany all Permanent Closure Applications for

USTs (as revised 2/93 and earlier) received by the Rhode Island Department of Environmental Management on or after August 25, 1993. -Tank Farm 4 FACILITY NAME: NETC, PWD Bldg 1 FACILITY ADDRESS: 1 Simompietri Drive Newport.RI 02841 PROPOSED CLOSURE DATE: 10 June 96 FACILITY REGISTRATION #: _____15007 * please note that the UST registration fee has increased to \$50.00 per tank. Payment of all unregistered tanks must be submitted with this application. Has a check in the total amount of \$50.00 per unregistered 1. tank been submitted with this application? N/A (Previously submitted with original application) In the space provided below, please draw an informal sketch 2. of the location of each UST to be permanently closed. Number each tank to coincide with the tank numbers on your UST registration form. (See attached site plan) (Note: for questions 3-7 please refer to Tank Farm 4 Work Plan) Describe the method to be used to empty the tank(s) prior to excavation. Describe the method to be used to remove the tank from 4. excavation. Describe the method(s) to be used to properly and safely 5. vent the tank(s) and properly make openings in the tank(s). * NOTE: Appropriate venting must be carried out both before the cutting of any tank and before off-site transport of any tank which has not been completely cleaned per Rule 15.11(c) of the UST Regs. Describe the instruments used to verify that the tank(s) 6. have been properly vented. Describe how any residues remaining in the tank(s) will be 7. managed.

APPENDIX B DATA FOR TANK CONTENTS

Tank 45 did not have any oil or sludge in the bottom, as a result there is no Tank Contents Data.

APPENDIX C DISPOSAL MANIFESTS/BILL-OF-LADINGS

Tank 45 did not have any oil or sludge in the bottom, as a result there is no Disposal Manifests/Bill-of-Ladings.

APPENDIX D DEGREASER/VENDOR INFORMATION



"Maintenance Chemicals For Your Eavironment"

HAZARD RATING 4 = EXTREME 3 = HIGH 2 = MODERATE 1 Resctivity Texicity 1 = SUGHT0 = MSIGNIFICANT Special = CHRONIC HEALTH HAZARD - SEE SECTION V

MATERIAL SAFETY DATA SHEET

(Essentially Similar to Form OSHA-20)

SECTION I

REVISED: 06-15-87

CHEMICAL NAME AND SYNONYMS TRADE NAME AND SYNONYMS ENVIRO 2000S N/A CHEMICAL FAMILY **FORMULA** Detergent Proprietary

SECTION II — HAZARDOUS INGREDIENTS

MATERIAL	CAS N	%	TLV (units)
Sodium Hydroxidè	1310-73-2		2 mg/m ³ 200 mg/m ³ IDLH

SECTION III — PHYSICAL DATA

BOILING POINT (°F)	216°F	SPECIFIC GRAVITY (H,0 = 1)	1.04
VAPOR PRESSURE (mm Hg)	NIL	PERCENT, VOLATILE BY VOLUME (%)	94
VAPOR DENSITY (AIR = 1)	NOT EST.	EVAPORATION RATE (= 1)	1
SOLUBILITY IN WATER	COMPLETE	рН	12.0

PEARANCE AND OOOR Clear red liquid / minimal odor.

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method Used) Boils without flashing.	FLAMMABLE LIMITS	Lei N/A	Vei N/A
EXTINGUISHING MEDIA Use carbon dioxide alcohol foam dry chemicals in	n areas where che	micals stor	red.

SPECIAL FIRE FIGHTING PROCEDURES

Aqueous solutions of product are alkaline.

UNUSUAL FIRE AND EXPLOSION HAZARDS None.

SECTION V — HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE

See Section II.

EFFECTS OF OVEREXPOSURE

Inhalation: Airborne concentrations of mist or spray may cause irritation of upper respiratory tract, nose and throat, hemolysis, hemoglobinuria.

Skin: Dermatitis may result from repeated or prolonged exposure due to defatting of tissue.

Eye: Product is destructive to eye tissue. May cause severe irritation.

Ingestion: Product can cause irritation of mouth, throat, esophagus and stomach.

EMERGENCY AND FIRST AID PROCEDURES

Eves: Irrigate immediately with running water for at least 15 minutes. Seek medical attention if irritation persists. Skin: Flush with soap and water immediately. Remove impervious clothing immediately when skin is wet or contaminated. Seek medical attention if irritation persists. Inhalation: If person exposed to large amounts of mist or vapor, move the exposed person to fresh air at once and perform artificial respiration. Ingestion: If ingested, seek medical attention immediately. Give large quantities of water

FOR MEDICAL EMERGENCY CALL COLLECT (713) 734-1656

· ~ i			SECTIO	N VI — REA	ACTIVITY DATA	
STABILITY	UNSTA	BLE		CONDITIONS TO	AVOID	
1	STABL	Ε	x	1	•	
INCOMPATABILITY (Mai	terials to avok	1)				
Acids, organ	nic halo	ogens, reac	tive me	etals suc	h as zinc, tin	, aluminum, leather and wool.
None.	STION PRODUC	CTS				
7.000UC		MAY OCCUR			CONDITIONS TO AVOID	
HAZARDOUS POLYMERIZATION	!	WILL NOT OCCUR		х		
		SECT	TION VII	- SPILL OF	R LEAK PROCEDUR	RES
STEPS TO BE TAKEN IN	CASE MATE					
with RCRA Re Large Spill:	gulatio Wear g weep up	ons. Flush coggles, cov , and place	any re veralls	sidue wit , and imp	th water. pervious glove:	nd dispose of in accordance s and boots. Add dry absorban ner and seal. Flush any
WASTE DISPOSAL MET		· · · · · · · · · · · · · · · · · · ·	···			
Treat and di						the RCRA as administered
		SECTION	vm — 9	SPECIAL PR	OTECTION INFORM	ATION
ARATORY PROTECTI	ON (Specify t)	rpe)				
Use NIOSH ap	proved	respirator	for mi	sts and v	apors.	
VENTILATION	LOCA	L EXHAUST			•	SPECIAL
		O maintain ANICAL (General)	below 1	TLV guide	lines	OTHER
•		Allest (deneral)				1
		or Neoprene			EYE PROTECTION Gogg	les or Safety Glasses
OTHER PROTECTIVE EQUI	PMENT Im	pervious bo	ots, ar	nd covera	lls, to minimi	ze skin contact.
		SI	ECTION I	X - SPECIA	AL PRECAUTIONS	
•	l dry.p	lace in ori			ntainer. ng conditions.	
THER PRECAUTIONS Read all dire Keep out of r			ns on 1	abel befo	ore use.	

FOR MEDICAL EMERGENCY CALL COLLECT (713) 734-1656

I statements, information and data given are believed to be accurate and reliable as of the data hereof, but are presented without guaranty warranty or responsibility of any kind, appressed or implied on our pain. It is not intended to be all inclusive and the manner and conditions of use and handling may involve other or additional considerations, formation regarding the proper course of treatment in the event of an accident or misuse of this product is properly the domain of the attending physician.

QUICK IDENTIFIER (In Plant Common Name) Material Safety Data Sheet SW 1000 FIRE Marcillacurer's (201) 437-7775 HAZARD RATING Name Heritage Labs, Inc. 4 - Extreme 0 3 - tiigh Addiess P.O. Box 4141 2 - Moderale HEALTH REACTIVIT . Bayonne, NJ 07002 1 = Singht 0 = Insignificant Signature of Person Responsible for Preparation سلع ۲. هگ See Section (5) SPECIFIC HAZARO 10/10/89 Donald SECTION 1 - IDENTITY Common Name (used on label) SW 1000 (Trade Name & Synonyms) Chemical n.a. Name Formula Proprietary SECTION 2 - HAZARDOUS INGREDIENTS ACGIH TLV Principal Hazardous Component(s) (charnical & common nania(s)) 40 Other Limits Recomment as CAS # 6834-93-0 **<58** Sodium metasilicate n.a. < 5₺ (TWA 400 ppm, STEL 500 ppm) 67-63-0 Isopropanol (C 2 mg/m³)Sodium hydroxide 1310-73-2 ८ 1 % SECTION 3 - PHYSICAL & CHEMICAL CHARACTERISTICS (Fire & Explosion Data) Specific 213°F 1.036 n.a. Pressure (mm Hg) Gravity (H2O = 1) Paint Evaporation Hate Percuni Votatila Vapor 0 n.a. < 18 water - 1) by Volume (96) Density (Air = 1) Reactivity in Solubility completely none m V/aler Water Appaulance clear liquid / non objectionable odor and Odur Auto-Ignition Upper Extinguisher Fusn Flammable Limits Medie Temperature <u>none r</u>equired none in Air % by Volume Sum none n.a Unusual Fire and " pecia" Fire none none Explana Hazarda Fighing Procedures SECTION 4 - REACTIVITY DATA Unstable Conditions to Aw J none Stable Only those materials incompatible with water. incompatability (Materials to Avoid) Hazardous Decomposition or Byproducts n.a. Hazardous May Occur Conditions to Avoid none Polymenza ur IOI LICCUI X

Poute(s) of Entry	inhalation?	unlikel	. у	Skin ⁷ li	kely			ngestion?	unlil	kel	Y
Health Hazards (Acute and	1 Chronic)	Skin ir	ritati	ion ma	y deve	lop	if re	peate	d exp	osu	re
		occurs	or if	it is	used	for .	long	perio	ds of	ti	ne.
		Avoid e	eye cor	ntact.							
Carcinogenicity:		None kr	own								•
Signs and Symptoms of E	Exposuré	None ki	nown								
Emergency and First Ald Procedures		n.a.									
1, Inhalation	Mov	e to mo	ce ade	quate	ventil	atio	n.				
2. Eyes Rinse	e thorou	ghly wi	th wate	er, if	irrit	atio	n dev	elops	se	e . p	bysici
1 Skm Same	as abov	е.				•					
4. Ingestion Drini	, inicas	, milk	or wate	or - c	200011		<u> </u>	-ian			
- DE TIII	Jurces	,	J		Olisui	. a p	nysic	.1011.			
SECTION 6 - SPE					Olisuit	. ар	nysic	.1011.			
		TECTION IN	FORMAT	ION	ventila		- -				
SECTION 6 - SPE	ECIAL PRO	TECTION IN	FORMAT	Oper \			•		Other ald be	ađ	aquate
SECTION 6 - SPE Asspiratory Protection (Specify Type) Ventiliation	n.a	TECTION IN	ide pro	Oper \	ventila Go	ition Special	• •	Shou			
SECTION 6 - SPE Asspiratory Protection (Specify Type) Ventilation Protective waite:	n.a	rection in	ide pro	Oper \	ventila Go	ition Special	• •	Shou	ld be		
SECTION 6 - SPE Respiratory Protection (Specify Type) Ventilation Protective water Gloves Other Protective	n.a Local Exhauel	prov	ide pro Mecha (Gener Ves.	Oper Vinical (all) Eye Protect	ventila Go	special oggle	s or	Shou	ld be		
SECTION 6 - SPE Respiratory Protection (Specify Type) Ventilation Protective Gloves Other Protective Ciciting or Equipment	n.a Local Exhauet r resist	prov	ide pro Mecha (Gener Ves.	Oper Vinical (al) Eye Protect	ventila Go K PROCE	stion Special oggle	s or	Shou	ild be	sse	S.
SECTION 6 - SPE Hespiratory Protection (Specify Type) Ventilization Protective Gloves Other Protective Ciciting or Equipment SECTION 7 - SP Prenaulions to be Taken	n.a Local Exhauet r resist	nection in provident glow	ide pro Mecha (Gener Ves.	Oper Vinical (al) Eye Protect	ventila Go K PROCE	stion Special oggle	s or	Shou	ild be	sse	S.
SECTION 6 - SPE Respiratory Protection (Specify Type) Ventilation Protective water Gloves Other Protective Cictring or Equipment SECTION 7 - SP Preraulions to be Taken in Handling and Storage	n.a Local Exhauel r resist ECIAL PRE	nection in provident glow	ide prometer (Generate AND SPI	Oper Volumes I	Ventila Go K PROCE	stion Special oggle	s or	Shou	ild be	sse	S.

The information on this data sheet represents our current data and best of inion as to the proper use in the handling of this product under normal conditions. The informatic and recommendations are offered for the user's consideration and examination, and it is the user's responsibility to satisfy itself that they are suitable and complete for it particular use. Any use of this product which is not in conformance with this data show which involves using the product in combination with any other product or any other process is the responsibility of the user.

APPENDIX E MANIFESTS (DEBRIS DISPOSAL)

Tank 45 did not have any oil or sludge in the bottom, as a result there is no Manifests (Debris Disposal).

APPENDIX F STRUCTURAL INSPECTION

05/08/97

UNDERGROUND STORAGE TANK SECTION 291 Promenade Street Providence, Rhode Island 02908 (401) 277-2797

UST ID 03644 UST ID LS 2712

CLOSURE INSPECTION SHEET FOR UNDERGROUND STORAGE FACILITIES

On the 24th of	January 1997	L Daniel Russell & Pau	l Kulpa
(date)		(inspector)	
witnessed the perma	nent closure of the following ur	nderground storage tanks owned/o	perated by
Naval Edix	ration & Training Center,	Tank Farm 4	_
(owner/oper	ator)		
and located at			
Ports	nouth		_
(address)			
TANK ID	VOLUME	STORED MATERIAL	TANK STATUS (F = Filled / R = Removed)
45	2.5 MG	#6 fuel oil	pre
	•		
* Tank to be d	emolished and filled at a	later date	
Signature: $\frac{\cancel{7}}{\cancel{5}}$	Daniel Russell Jr.	fr. Paul Ruba	• •
Title: Em	ironmental Scientist	Jr. Sanitary Enginee	
Unde	erground Storage Tank Section, artment of Environmental Manu	/Leaking Underground Storage Tage ment	nk Section

A closure assessment must be submitted to the Division of Site Remediation, Leaking Underground Storage Tank Section within 30 working days.

NOTE: This is not a document to approve or certify that tanks are safe r clean to transport.

NOTE: TANK Clean AND DRY TANK WAS. Cleaned By Forter weeder ona evalua mason auto SW1000. FLOOR. NO REPAYS CRACES PLAN VIEW AND NOER NO REPR

APPENDIX G BORING LOGS

VERBURDEN WELL CONSTRUCTION 2	NO. MW-122 BORING HALLIBURTON N LE AKCIONITE TF 4+5 PAGE: 1 OF 1	
PROJECT LOCATION: NETT - NOINTELL	KI WILL TEY-	122 / TF4-13-45
CLIENT: 1'AU FAC FN+ (CM		
CONTRACTOR: EDI	DRILLER: (LAMAKCHE BORING LOCATIO	\ <u></u>
LOGGED BY: K. JALKUT	DATE: 11-15-44 PROJECT NO:	
CHECKED BY:	DATE:	
		1.75 FT
ELEVATION TOP OF PROTECTIVE CASING 13.0 MW	LENGTH OF PROTECTIVE CAS	TNG OR RUAU BUA
	ABOVE GROUND SURFACE LENGTH OF RISER PIPE ABOV	E GROUND 7 141 FT
RISER PIPE 112.65 MLD	SURFACE	
GROUND 313 2 AAS		
ELEVATION	TYPE OF SURFACE SEAL	Quikrele Cons Mia
(CE)	TYPE OF SURFACE SEAL TYPE OF PROTECTIVE CASI 1.0. OF PROTECTIVE CASI	
(CE	TYPE OF PROTECTIVE CAS	ng Steel
	I.D. OF PROTECTIVE CASH	iG
	DEPTH BOTTOM OF SURFACE	3 FT 3.25 FT
	DEPTH BOTTOM OF CASING	
	DEPTH BOTTOM OF SAND	PRAIN 4FT
	4 4	ا ۱۹۰ کمه کمال کا
General	TYPE OF RISER PIPE 1.D. AND O.D. OF RISER F	IPE YELLING
Canditions (not	TYPE OF BACKFILL AROUN	IN RISER PIPE Bentante Slu
scalei	TYPE OF BACKFILL ANDO	30-1
	DEPTH TOP OF SEAL	30 FT
	TYPE OF SEAL	Bent Chi
		31 FT
	DEPTH BOTTOM OF SEAL	10 44 10
	DIAMETER OF BOREHOLE	SECTION
	TYPE OF PERVIOUS SEC	TION <u>Schräde Y</u>
		ب ا با
	LO AND O.O. OF PERVIO	0.020 Sla
	TYPE OF OPENINGS	HO Can
	TYPE OF BACKFILL ARC	ANA (FILL IAAA
1 minutes /	7	
14	DEPTH BOTTOM OF PER	
	DEPTH OF BACKFILL	39 FT
	TYPE OF BACKFILL	Silica Sa 40 FT

		NO FELI-MIN-122)	NUS CORPORATION
	1-B-45= 12EU	NO. TF4-MU-122)	BORING NO. 1754-8-45
PROJECT	ON WETT L'ENGINE		GROUND ELEY:
OATE STATE CO.	ATION: VIZITURE		TOTAL DEPTH: 40'
TE COMPLETED: 11-15-94 BEARIN	G:	CHECKED BY:	to day (without 30 - 454
SAMPLE	REMARKS ON	SOIL AND ROCK C	to 19' (ushion 39-15-
TYPE- BLOSS PEN. REC	BORING	<u> </u>	
11-17 11-17 15-11 24 M	10001	Subrevised gravel up to	Ly SILT- poorly grated most with gravel up to 1/4 x "zin, sold fragment" of transpolar up to 114 diamotes and sand, brown, day mel (damp) (ML)
28 7.5 24 19	21 kmon Sample 0918 hrs 90 ppm on	S-2 (iAin) sandy gran	elly SILT- Similar to 5-1 ndell grands up to 134x of grands Uplaty-like) up to ingreate - Moist throughour
Suite 5-10 5-10	5 Multitut met sawrate L 10 pp.n on sample P-0	5-3 (15 in) Sandy Gran onaded, Sine Coaries 5 1314x 114 in (gount	rely SILT- mostly cit, poore is adequise a grander up to perhabe one roase in a grand in a grand sand, brown, fraguents, other grand ments, other grand many sanguier (MC)
52 5-4 7 3-4 24 34 5-16 24 34 34 34 34 34 34 34 34 34 34 34 34 34	OUXY P-O OUXY OUXY OUXY OUXY OUXY OUXY	Sig (21 in) sandy gri	everly SUT-poorly graded and substituted of the sub
505 -> 56 V 11-33 24 501-33 24 501-33 24	THE Phase	5-5 (18in) sandy i	sharety sict-similar +
3 10 00 38 16-21 24	MATURATED- FREE PHASE OIL 705514e mmgd	gravely up to 3 in gravels up to 1 in,	subvounded to rounded x Z= 1/2 in, angular coars few angular fire gran free phase oil on gran
NS 100/4m 10	PREE PHUSE OIL/Peirol Oder	s-7 (loin) sandy	Silty GKANEL - poorly and to the well rounded grandle (Danse angulant Schangulans out fine anywhat grandle u.
40	NOTES. HSA 616	4 ID 1014 OD augus	po=petrolec
PEGENO: Type of sample	1	- ニョノ だて	Q Z61-40 like f
\$ - Solit Darrel Samble alows PEA 6' - 40 lb nammer along 10' to drive a solit Darrel Sambler along 10' to drive	(ontinuous	work (for mark)	TE. 11-15-94 PROJECT
REC - ength of sample recovered 7 - Hatural ground water table	plater/hi	she met. rk-slatelphyvite Pa	

PROJECT: CTC 143	n-84 INCT	100: Newport P NATION: Vestical NATION:	LOGGE	o BY: K. Jaikut	BORING NO.: TFU-PI-YS GROUND ELEV: TOTAL DEPTH: 7 FF
A TYPE-	SAMPLE	REMARKS ON EC. ADVANCE OF	GRAPHIC LOG	SOIL AND ROCK DE	ESCRIPTIONS
2 4 5-1 6 5-2 8 10	4-12 1-30 4-12	1557 hrs 10	1 1	12 (10 in) sandy mostly sit, son medium sand; garel Upiece diameter, bre (ML).	consider SILT-porty if, some coarse subarge in diameter, few charel up to 5/16 few redium sand duy, loose (ML) SILT- poorty grade the saind, trace frace roance angul) up to linch by/2 our, duy, loose rounce, a rounce,

NOTES: - Advanced anger prolong with Oto 4 feet with a rotan 37/8 in inside diameter stolle Stem auger · Used 2-in split barrel, advanced with a 14016 hammer

· Collected soil samples continuously to to & Freet

Backfield probing with surrounding Coil

OUA not working - no FID Hading PAGE 1 OF 1

BORING NC

NUS CORPORATION TANKFARM 4-PD-TANK 45 BORING NO . TF4 - PJ - 45 LOCATION NO LART KI PROJECT: TO 143 LOGGED BY: K. JAIKUT GROUND ELEY ... INCLINATION: Vesticie DATE STARTED: H-14-44 CHECKED BY: TE COMPLETED: 11-14-44 REMARKS ON SOIL AND ROCK DESCRIPTIONS ADVANCE OF PEN. I REC. I BORING PER 8º | 'in. Advanced augus to 4 feet to soil samples were collected . Oto 4ft X 5-1 (Ilin) sandy SILT- poorly graded, mostly silt, some fine sand, few medium sand, 15:14 hrs few coarse subarryular to subrounded 6-17 11 34 gravels up to 34 in cliameter, rock 131-43 fragments brown, loca, duj (nc) 5-1 Refusal with End of Probing @ 6 ft Split barrel @ 6H-HOPE G Note: Relocated probing location due to refusal. See other log for P2-45, 6-8 ft. for completion of description OVA not working no FID readings

NOTES. . Advanced protoing with a rotany driven 3 th inch inside diametic

· used 2-in spirt burrel advanced w/a 140 16 harmen · Refusal @ 6', pulled fools, backfilled w/surrounding soil and

relocated probing within 5 feet of original location. See P2

DATE: 11-14-94 PROJECT NO: 02
PAGE / OF / BORING NO: PZ-

UTEC	T: (*]]	: 143	, , , , ,	LO	CATION	E Newport	<u> </u>	ORILLEO BY: EDT	NUS CORPORATI
								LOGGED BY: K. Jalkut	
									TOTAL DEPTH: 8 ft
	. :		SAMPI	E		REMARKS ON	:0		
์ ธ	Ξ.	TYPE-	BLOWS PER 6	PEN.	REC.	ADVANCE OF	GRAPHIC LOG	SOIL AND ROCK	COESCRIPTIONS
įė		NO.	PER 6"	in.	in.	BORING	15 -		
	7				-			Advanced aug No s'oil samples O H	es to 6 feet were collected o 6 feet
	4	\$-	17·14 8·8	રૂપ	33	1542 hrs		Subangular to a	gravelly SILT- poorly t, some coarse subargul in diameter, few fine ngular gravels up to L. Sand, few medium
			 Ect	0	8'	:			Probing @ 8 ft
	10		N	o FII	o rea	idengo- Jaking	:	lejusul cut of location at location cur sample 6	relocated probing engenul 12-45 6 feet. Relocated 5 feet is ongene id collected a to 8 feet. See in 12-45, 4 to 6 ft
	:	1 :			:	•		for ion	plete description
S - S - S - S - S - S - S - S - S - S -	NO - 1 Rock C Sout Da Sout Da PER 6 'allin 3 SD Corer Penetr Length	ig 30° to lig time bi ation lend of samo	ie Die D. nammer Glive	DIET	• U	sed 2-inch	5p111 d + 116 doug	bing o to a feet with it seem augen - barrel und collect arrel with a 14016 ping with	plete description a rotary driven 3 7/2 kd a soil sample 6 7

PROJECT: FTC JU3	LOCATION NEWFORT RE	ORILLED BY: EDI	BORING NO : TF4-P3 -45
DATE STARTED: 11-14-44	INCLINATION: Ventice	LOGGED BY: K. lalkut	GROUND ÉLEY:
TE COMPLETED: 11-14-44	BEARING:	CHECKED BY:	TOTAL DEPTH: RFT

	SAMPLE TYPE- BLOWS PEN.				REHARKS ON	, 0		
ELEV. feet	DEPTH feet	TYPE-	BLOWS	ı	REC.	ADVANCE OF BORING	GRAPHIC 106	SOIL AND ROCK DESCRIPTIONS
	2							Advanced augus to 4 feet No soil samples were collected O to 4 feet
		5-1	पं-प . व-17	44		1508 hrs		S-1 (16 in) sandy SILT- porty graded, mostly silt, some fine sand, few nedium sand, few warse gravels up to linch, few fine gravels up to 1/2 inch - both subangular, rock finagments, brown, loose, duy (ML)
	8	5.2	13-10 16-20	 	16	, @ & '		graded mostly sit, some coarse subungular gravely sit, some coarse subungular gravels up to Zin by lin, few fine gravels up to 1/2 in (subungular), little fine sand, fou redium sand, oxidized ruck fragments (reddish-brown), brown fines, look, duy (mc)
	10			 	<u>.</u> 		:	End of probing @ 3 ft
	اعدا							Nok: CUA not working -no FIB readings collected
	1				! .		ļ	

I.EGENO:

I.EGEN

NOTES: · Advanced probing with a retain, driven 3 7/8" inside diameter solid stem auger 0 to 4 feet.

- · used 2-in split barrel; continuous soil sampling 4 to 8 feet
- Advanced samples with a 140 lb hammer

Backfilled probing with surrounding soil

DATE 11-14-44 PROJECT NO: 0288 PAGE OF I BORING NO : P3-45

	IG LO	G (ANK 45		NUS CORPORAT				
								ORILLED BY: FPI		BORING NO . TF4 - P4 -				
								LOGGED BY: K. Ja	IKUT	GROUND ELEY:				
TE	COMPL	ETED: <u>//</u>	-1U-ül	1	BEARING	:		CHECKED BY:		TOTAL DEPTH: 7 FT				
	_		SAME	LE		REMARKS ON	<u> </u>							
feel	leet te	TYPE-	BLOWS PER 6	1	in.	BORING	GRAPHIC 106	SOIL AND ROCK DESCRIPTIONS						
	0 4 6	ς-(ς-λ	5-6 6-11 17-19 10-11		16 19	1430 hrs		51 (Ilin) so Silt, some for Coarse subar few fine so diameter, r duy (ML)	undy SILT- ne sand, few ngular grav ubangular gr ubangular gr uck fragner	pointly spaded, moderated of the 4 ft. pointly spaded, moderated of the 4 ft. els up to I in diameter op to 14 in 1008, they SILT- portly some coarse of coarse of the coarse of the fore sand, few girents, borun,				
	اه)			98	c .			End	of probing	ginents, bown,				
5 + 50 Ows PE	cx core it barre a 6' - 'alling ! a sout (coring i netration	e of same sample sample a Q Ib no a greet sam time per from the per from sample from the water	ammer ve loier; lot of roc or sambler ecovered		مى ئىرى 4 كىلى	ger 0 to 4 of 1 z-in split unued barrel befilled probi	eet barr with	el; continuous na 140 lb trang	soil sampling					

DATE 11-14-94 PROJECT NO: CZ

Backfilled probing w/sorrounding

Data Sheet for PETRO RISC® SamplePro Test

							7
Operator: Gau	n Ole	unor	Date: _11/18	Jan	Location:	0019	
Operator.	Lo	w Test Le	vel				Comments
Sample ID	ΔOD	OD sample	Interpretation	ΔOD	OD sample	Interpretation	- Commercia
	Standards	<u> 2</u> ppm		Standards	<u>//</u> の ppm	acor	
Colicate 872	0.07		ac ok	-0.06		<100 com	
Replicate 872 SO-7F4-B-42-2628	-0.49		725 pgm	0.08			
50-754 - 13-45-3037 50-754-13-46-3032 50-754-13-46-3840	~0.62		725 pm	-0.08		2100 pm	S-DI Labor
90-7F4-B-46-3032	0.03		425 pm	0,13		<100 pm	7:00
50-TF4-B-46-3840	0,25		C25 pp	0.49		2100 opn	401
			10			i	
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	.			<u> </u>	 		
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				-	 	1	
	_		<u> </u>				
	.l						

APPENDIX H SOIL AND GROUNDWATER ANALYTICAL RESULTS

DATA QUALIFIERS

J Quantitation is estimated

U Parameter is not detected at the listed detection limit

UJ Parameter is not detected at the estimated detection limit

SAMPLE NUMBER KEY

Field samples collected from both sites, Tank Farms 4 and 5, are assigned a unique field sample tracking number. This numbering system as presented in Appendix C is explained here. Sample numbers are keyed to specific tanks in each tank farm and will consists of a five-segment alphanumeric code that identifies the sample matrix, the site and sample location, sample depth, and the quality control (QC) identifier.

The alphanumeric coding to be used in the sample numbering system is explained in the following diagram and the subsequent definitions:

AA = (Matrix)

TFN-AA-NN = (Sample location, site identifier - borehole/probe - number)

NN = (Sample depth) A = (QC identifier)

Character type: A = Alpha

N = Numeric

Matrix: SO = Soil

GW = Groundwater

Sample location: Sample locations will be identified by specific tank farm and borehole or groundwater monitoring well number. Two alpha characters will indicate the specific tank farm; a pair of numeric characters will be assigned to correspond with individual tank numbers so that location is identifiable from all other locations of a similar type.

TF-4 = Tank Farm 4 TF-5 = Tank Farm 5

B = Borehole (subsequent monitoring well installation)

P = Probe

Sample identifier: Depth in feet below ground surface representing the top of the interval sample was collected.

QC Identifier: The QC identifier will be assigned only when applicable. The following identifiers will be utilized.

D = Field Duplicate

R = Equipment Rinsate Blank

F = Field Blank
T = Trip Blank

Example: A soil sample collected from 2 to 4 feet below ground surface from a boring located in Tank Farm 4, adjacent to tank number 39 will be numbered:

SO-TF4-B-39-02

. SOIL VOLATILE ORGANICS (ug/Kg)

١	Ţ	10	t	1	Į	0):	
	_	-	_	_	_	_	_	

BORATORY ID:

1	VV
SOTF4B453436	SOTF4B45DUP
940996-26	940996-27
FIELD DUPLIC	ATE PAIR

•			, ,		
ALYTE	CRQL	WDL/IDL			
,	10	2	60 U		U
loromethan	10	2	60 U		U
momethane	10	2	60 U		U
y/ Chloride	10	2	60 U		U
lor ethane	10	2	60 U		U
thylen Chloride	10	2	91 U		U
etone	10	· 2	60 U		U
rbon Disulfide	10	2	60 U		U
-Dichloroethen	10	2	60 U		U
I-Dichlor ethane	10	2	60 U		U
?-Dichlor ethene (t tal)	10	2	60 U		U
dor form	10	2	60 U		U
2-Dichloroethane	10	2	60 U		U
Butanone	10	2	60 U		U
1,1-Trichloroethane	10	2	60 U		U
irbon T trachloride modichloromethan	10	2	60 U 60 U		U
2-Dichloropr pane	10	2	•• =		Ü
-1,3-Dichlor propene	10	2	60 U 60 U		ŭ
Ichloroethene	10	2	60 U		ŭ
brom chloromethane	10	2	 =		Ü
1,2-Trichloroethane	10	2	60 U 60 U	58	Ū
enzene	10	2	•• •	58	Ü
ans-1,3-Dichloropropene	10	2	•••	58	ŭ
lowal tw	10		60 U	58	Ü
-Methyl-2-Pentanone	10		60 U	56 58	Ü
-Meury-2-Pernanone -Hexanone	10		60 U		U
etrachloroethene	10		60 U	58 50	
	10		60 U	58	U
,1,2,2-Tetrachloroethane	10	2	60 UJ	7	J
oluene	10	2	60 U	58	U
hiorobenz ne	10	2	60 U	58	U
thylbenzene	10		60 U	58	U
tyr ne	10		60 U	58	U
lylen (total)			_	5	
ILUTION FACTOR:			5 83	86	
6 SOLIDS			03	50	

ISE NO. CTO143

:IMIC CORPORATION

IL SOIL VOLATILE ORGANICS (ug/Kg)

;L SOIL VOLATILE ORGANICS (ug/Kg)											1		
'ATION ID:			SOTF438DUP 940996-22		SOTF4B383234 940996-21		SOTF4B423234 940996-23	SOTF4B42363 940996-24	8	SOTF4B 940996-2		i	
BORATORY ID:			FIELD DUPL										
			FIELD DOPL		IE FOIL								
VALYTE	CRQL	MDL/IDL											
		_	42	u	60	U	11 L	57 ر	U			U	
nior methane	10	2	12	U		Ŭ	11 U	J 57	U			U	
omomethane	10	2	12			Ü	11 (57	U	1	59	U	
nyl Chloride	10	. 2	12	Ü		Ü	11 (U		59	U	
hloroethane	10	2	12	U		U	• • •	ے 57	U	1	59	U	
ethylene Chloride	10	2	12	U		nn n		j 57	U)	59	U	
	10	2	21	U			, , , , , ,	y 57	U	١.	59	U	
cetone arbon Disulfide	10	2	12	U	60	U	* * *	y 57	U		59	U	
1-Dichi roethene	10	2	12	U	60	U	• •	U 57	ũ		59	U	
	10	2	12	U	60	U	• •		ŭ		59	U	
1-Dichloroethane	10	2	12	U	60	U	• •	Մ 57 Մ 57	ŭ		59	U	
2-Dichloroethene (total)	10	2	12	U	60	U	• •		ŭ	_	59	U	
hi rof rm	10	2	12	U	60	U	• •		ŭ		59	U	
,2-Dichlor ethane	10	2	12	N		J	• •	U 57 U 57	ŭ	_	59	U	
Butanone	10	2	12	U	60	U	• •		ŭ	_	59	Ū	
,1,1-Trichloroethane	10	2	12	U	60	U	• •				59	Ū	
arbon Tetrachloride	10	2	12	U	60	U	• •	U 57 U 57	ũ	_	59	Ū	
r modichlor m thane	10	2		U	60	U	11	ບ 57	ũ	-	59	U	
,2-Dichl r propane _	10	2	12	U	60	U	11	U 57	ũ		59	U	
is-1,3-Dichloropropene	10	2		U	60	U		U 57			59	U	
richt rethene	10	2	12	U		U					59	U	
hbromochloromethane	10		12			U	11	•		J	59	U	
.1,2-Trichlor ethane	10		12			U				บ	59	Ū	
lenzene	10		12	U		U	' !!		-	บ	59	Ū	
'ans-1,3-Dichloropropene	10			U	60	U				U	59	Ū	
Iromoform	10			U	60	U		ປ 57			59		
-Methyl-2-Pentanon	10				60	U		U 5		U	59	Ü	
!-Hexanone	10				60	u	j 11	U 5		U			
etrachloroethene	10	_	•			u		U 5		U	59		
1,1,2,2-Tetrachlor ethane	10		•			u		U 5		U	59 50		
oluene	10					U	j 11	U 5		U	59		
Chlorobenzene			12		·	u	J 11	U 5	•	U	59		
Ethylbenzen	10		12			U	. 11	U 5	•	U	59		
Styren	10		2 12		•	ί	j 11	U 5	7	U	59	U	
Kylene (total)	10	, ,	. 14		-						_		
•			1	ı	5		1		5		5		
DILUTION FACTOR: % SOLIDS			86	•	84		90	8	7		85		
/7													

CEIMIC CORPORATION

TCL AQUEOUS VOLATILE ORGANICS (ug/L)

TCL AQUEOUS VOLATILE ORGANICS (ug/L) STATION ID: LABORATORY ID.			GWTF4DUP1 941038-08 FIELD DUPL	94	SWTF4MW119 41038-09 E PAIR	GWTF4MW120 941038-01	9	GWTF4MW121 941038-02	GWTF4MW122 941038-10
ANALYTE	CRQL	MDL/IDL				40		10 U	10 U
	10	2	10	U	10 L		U	10 U	10 U
Chl romethan	10	2	10	U	10 L		U	10 U	10 U
Brom methane	10	2	10	U	10 L			10 U	10 U
Vinyl Chlorid	10	2	10	U	10 L		U	10 U	10 U
Chloroethane	10	2	10	U	10 L		U	14 U	**
Methylene Chloride	10	2	10	บป	• •).) 10	U	10 U	
Acetone	10	2	10	U		ا 10 د د	U	10 U	
Carbon Disulfide	10	. 2	10	U	, -	J 10	U	10 U	
1,1-Dichloroethene	10	2	10	U	• • •	ປ 10 ປ 10	U	10 U	
1,1-Dichloroethane	10	2	10	U			U	10 U	
1,2-Dichloroethen (total)	10	2	10	U			Ü	10 U	
Chlorof rm	10	2	10	U	• -		Ü	10 U	10 U
1,2-Dichlor ethane	10	2	10		, -		ŭ	10 U	
2-Butan ne	10	2	10		•-	U 10 U 10	ŭ	10 U	
1,1,1-Trichlor ethane	10	2			,-	U 10	Ŭ	10 U	
Carbon Tetrachloride	10	2			•-	U 10	Ū	10 U	
Br modichloromethane	10	2				U 10	Ū	10 U	
1,2-Dichlor propan	10	2			• •	U 10		10 U	
cis-1,3-Dichlor propene	10				• •	U 10		10 L	
Trichloroethen Dibrom chloromethane	10					U 10		10 t	
	10					Ü 10		10 L	
1,1,2-Trichloroethane	10				, .	Ü 10		10 L	
Benzene trans-1,3-Dichloropropene	10		10			Ŭ 10		10 L	
	10		2 10		•-	Ü 10	U	-	J 10 U
Bromoform	10		2 10		10	Ŭ 10		, , ,	ט 10 ט
4-Methyl-2-Pentanone	10		2 10		10	Ŭ 10		10 (U 10 U
2-Hexanone	10		2 10		10	Ü 10		,-	U 10 U
Tetrachloroethene	10		2 10		10	Ü 10	U	• -	U . 10 U
1,1,2,2-Tetrachloroethane	10	*	2 10		10	Ū 10	U	• •	U 10 U
Tolu ne	10	-	2 10	_	10	Ŭ 10		• •	U 10 U
Chlorobenzen Ethylbenzene	10	-	2 10 2 10		10	Ŭ 10	U	, ,-	บ 10 U ม 10 U
Ethylbenzene Shrene	10		-		10	υ 10) U	10	U 10 U
Styrene Xylen (t tal)	10	3	2 1	U U	,,	-		-	4
When It red				1	1	•	ı	1	1

DILUTION FACTOR.

CASE NO CTO143

CEIMIC CORPORATION

TCL SOIL SEMI-VOLATILE ORGANICS (ug/kg)

TCL SOIL SEMI-VOLATILE ORGANICS (ug/kg) STATION ID: LABORATORY ID:			SOTF438DUP 940996-22 FIELD DUPL	9	OTF4B383234 40996-21 E PAIR	SOTF4B423234 940996-23		SOTF4B423638 940996-24		SOTF4B453234 940996-25		
ANALYTE	CRQL	MDL/IDL										
7 11 47 10-1 T		20	380	U	390 U	370	U	,	U	390		
ACENAPHTHENE	300	30	930	Ü	940 U		U	4600	U	950		
2.4-DINITROPHENOL	800	80	930	Ü	940 L		U	,,,,	U	950		
4-NITROPHENOL	800	80	380	ŭ	390 L		U	,,,,	U	390		
DIBENZOFURAN	300	30	380	ŭ	390 L		U	,	U	390		
2,4-DINITROTOLUENE	300	30	380	Ü	390 L	370	U	1900	U	390	-	_
DIETHYL PHTHALATE	300	30	380	Ü	390 L		U		U	390	_	_
4-CHLOROPHENYL-PHENYL ETHER	, 300	30		บ _่ า	40	370	U		U	52		
FLUORENE	300	30		U	940 L		U	-1000	U	950		_
4-NITROANILINE	800	80 80		Ü	•	910 ر 910 ر	U		U	950		
4.6-DINITRO-2-METHYLPHENOL	800			ŭ		ر 370	U		U	390	_	.
N-NITROSODIPHENYLAMINE	300			Ü	390 l	ر 370	U		U	390	-	J
4-BROMOPHENYL-PHENYL ETHER	. 300					J 370) U		U	390	-	IJ
HEXACHLOROBENZENE	300 800				940	IJ 910			U	950		U
PENTACHLOROPHENOL	300	T .			390	U 370			U		-	J ''
PHENANTHRENE	300				390	U 370			U		_	บ ม
ANTHRACENE	300				390	U 370			U			U
DI-n-BUTYLPHTHALATE	300		·		390	U 370		·	U		_	U
FLUORANTHENE	300		·		390	บ 370	_				-	J
CARBAZOLE	300				390	U 370			J			U
PYRENE	300		·		390	ບ 370				· ==	_	U
BUTYLBENZYLPHTHALATE	300				390	U 376	o L	-				
3,3'-DICHLOROBENZIDINE	300		~	_	390	U 370	oι				_	U U
BENZO(a)ANTHRACENE	300	_		_	390	U 37					-	U
CHRYSENE	300	-	·		390	U 9	3 J					
BIS(2-ETHYLHEXYL)PHTHALATE	300	-			390	U 37		<u>_</u>		_	-	U U
DI-n-OCTYLPHTHALATE	300	-	•		390	U 37		<u>-</u>		- I		U
BENZO(b)FLUORANTHENE		-		_	390	U 37		·				U
BENZO(k)FLUORANTHENE	300 300	•			390	U 37		ر 1900		• · · · · · · · · · · · · · · · · · · ·		U
BENZO(a)PYRENE		•	•		390	U 37	0 1	_		-		_
INDENO(1,2,3-cd)PYRENE	30	-	•		390	U 37	0 (J 1900				U
DIBENZO(a,h)ANTHRACENE	30 30	-	•	_	390	U 37	0 (U 1900	U) 3:	90	U
BENZO(g,h,i)PERYLENE	30	U 3	0	_				_				
			•	1	1		1	5			1 83	
DILUTION FACTOR.			86		85	8	8	87		'	O J	
% SOLIDS												

CASE NO. CTO143

CEIMIC CORPORATION

TCL SOIL SEMI-VOLATILE ORGANICS (ug/kg)

STATION ID: LABORATORY ID:			SOTF438DUP 940996-22 FIELD DUPL	UP SOTF4B383234 940996-21 UPLICATE PAIR		SOTF4B423234 940996-23		SOTF4B423638 940996-24		SOTF4B453234 940996-25	
ANALYTE	CRQL	MDL/IDL									
	300	30	380	U	390 U			,,,,,	U		U U
PHENOL	300	30	380	U	390 U		U	1900 (_		Ü
BIS(2-CHLOROETHYL)ETHER	300	30	380	U	390 U		U	,	U		Ü
2-CHLOROPHENOL	300	30	380	U	390 U		U		U		Ü
1,3-DICHLOROBENZENE	. 300	30	380	U	390 U		U		U		Ü
1,4-DICHLOROBENZENE	300	30	380	U	390 U		U		U U		Ü
1,2-DICHLOROBENZENE	300	30	380	U	390 L		U		U	390	Ü
2-METHYLPHENOL 2,2'-OXYBIS(1-CHLOROPROPANE)	300	30	380	U	390 L		U	,	u	390	Ü
4-METHYLPHENOL	300	30	380	U	390 L		U		U	390	บ
N-NITROSO-DI-n-PROPYLAMINE	300	30	380	U	390 L		U	• •	Ü		ŭ
HEXACHLOROETHANE	300	30	380	U	390 L		U		Ü	390	ŭ
NITROBENZENE	300	30	380		390 L		U	•	ü	390	Ū
ISOPHORONE	300	30			390 L		บ	• -	Ü	390	Ü
2-NITROPHENOL	300				390 L		U	•	Ü	390	Ü
2,4-DIMETHYLPHENOL	300				390 l		U	•	Ü	390	ŭ
BIS(2-CHLOROETHOXY)METHANE	300	30			390 l		_	•	Ü	390	
2.4-DICHLOROPHENOL	300	30			390 l		U	,	Ü	390	
1,2,4-TRICHLOROBENZENE	300	30			390 l		U	•	Ü	390	
NAPHTHALENE	300	30			390 (U	•	Ü	390	
4-CHLOROANILINE	300	30				370 ر	U		Ü	390	
HEXACHLOROBUTADIENE	300	30				J 370	U	iiii	Ü	390	
4-CHLORO-3-METHYLPHENOL	300	30				370 ر			U		_
2-METHYLNAPHTHALENE	300	30				J 370		1111	υ	390	
HEXACHLOROCYCLOPENTADIENE	300	30				را 370			Ü	390	
2,4,6-TRICHLOROPHENOL	300	30				J 370		1711	U	950	
2,4,5-TRICHLOROPHENOL	800) 80				910			Ü	390	_
2-CHLORONAPHTHALENE	300	30	380		• • • •	J 370		• • • • • • • • • • • • • • • • • • • •	Ü	950	
2-NITROANILINE	800) 80	930	U	• • •	ປ 910		•==:	Ü	390	
DIMETHYLPHTHALATE	300	30				ປ 370		·	U		
ACENAPHTHYLENE	300	30				U 370			U		Ü
2,6-DINITROTOLUENE	300	30				ບ 370			Ü		Ü
3-NITROANILINE	800) 80	930	Ų	940	U 910	U	4000	U	330	_
3-141110044ICH4C											

CASE NO. CTO143

CEIMIC CORPORATION

(CL SOIL SEMI-VOLATILE ORGANICS (ug/kg)

STATION ID: LABORATORY ID.

q	4	Y
SOTF4B453436 940996-26	B453436RE 940996-26RE	SOTF4B45DUP 940996-27
• (0000	FIELD DUPLIC	CATE PAIR

LABORATORY ID.					FIELD DUPLI	CATE	PAIR	
ANALYTE	CRQL	MDL/IDL						
	300	30	2000	U		U	380	U
HENOL	300	30	2000	U		U	380	U
3IS(2-CHLOROETHYL)ETHER	300	30	2000	U		U	380	U
2-CHLOROPHENOL	300	30	2000	U	2000	U	380	U
1,3-DICHLOROBENZENE	, 300	30	2000	U	2000	U	380	U
1,4-DICHLOROBENZENE	300	30	2000	U	2000	U	380	U
1,2-DICHLOROBENZENE	300	30	2000	U	2000	U	380	U
2-METHYLPHENOL	300	30	2000	U	2000	U	380	U
2,2'-OXYBIS(1-CHLOROPROPANE)	300	30	2000	U	2000	U	380	U
4-METHYLPHENOL	300	30	2000	U	2000	U	380	U
N-NITROSO-DI-n-PROPYLAMINE	300	30	2000	U	2000	U	380	U
HEXACHLOROETHANE	300	30	2000	U	2000	U	380	U
NITROBENZENE	300	30	2000	U	2000	U	380	U
ISOPHORONE	300	30	2000	U		U	380	U
2-NITROPHENOL	300	30	2000	U	2000	U	380	U
2,4-DIMETHYLPHENOL	300	30	2000	U	2000	U	380	U
BIS(2-CHLOROETHOXY)METHANE	300	30	2000	U	2000	U	380	U
2,4-DICHLOROPHENOL	300	30	2000	U	2000	IJ	70	J
1,2,4-TRICHLOROBENZENE	300	30	2000	U	2000	U	380	U
NAPHTHALENE	300		2000	U	2000	U	380	U
4-CHLOROANILINE	300		2000	U	2000	U	380	บ
HEXACHLOROBUTADIENE	300		2000	U	2000	U	380	U
4-CHLORO-3-METHYLPHENOL	300		2000	U	2000	U	380	U
2-METHYLNAPHTHALENE	300	= =	2000	U	2000	U	380	U
HEXACHLOROCYCLOPENTADIENE	300		2000	U	2000	U	380	U
2,4,6-TRICHLOROPHENOL	800		4800	U	4800	U	920	U
2,4,5-TRICHLOROPHENOL	300		2000	U	2000	U	380	U
2-CHLORONAPHTHALENE	800		4800	U	4800	IJ	56	J
2-NITROANILINE	300	- -	2000	U	2000	U	380	U
DIMETHYLPHTHALATE	300	·	2000	Ū	2000	U	380	U
ACENAPHTHYLENE	300		2000	Ū	2000	U	380	U
2,6-DINITROTOLUENE	800	= -	4800	Ū	4800	U	920	U
3-NITROANILINE	000	, ,						

CEIMIC CORPORATION

TCL SOIL SEMI-VOLATILE ORGANICS (ug/kg)

STATION ID: LABORATORY ID:

¥	. 🐧
SOTF4B453436 940996-26	B453436RE 940996-26RE
840880-20	040000 20112

3453436RE SOTF4B45DUP 340996-26RE 940996-27 FIELD DUPLICATE PAIR

ANALYTE CRQL MDL/IDL	
2000 11	380 U
ACENADHTHENE	920 U
2 4 DINITROPHENOL	920 U
A NITPOPHENOL	380 U
DIRENZOFI IRAN	380 U
2.4 DINITROTOLLIENE	J 1000 J
DIETHVI PHTHALATE	-
A CHI OROPHENYI -PHENYL ETHER	111
ELLIOPENE , 300 30 4000 LL 4800 L	
A NITPOANILINE	
4 6 DINITEO-2-METHYL PHENOL 800 00 1000 1	
ALAUTED SODIPHENYLAMINE	
4 PROMOPHENYL-PHENYL ETHER 300 11 2000 1	
HEYACHLORORENZENE 300 30 4000 U 4000 U	
PENTACHI OROPHENOI	
DHENANTHRENE 300 30 30 300 300 300 300 300 300 300	
ANTHDACENE 300 30 30 300 1	յյ 75 J
DIS DITY DHTHALATE	JJ 39 J
ELLOPANTHENE	
CAPPAZOLE	^
DVDENE 300 30 300 30 300 300 300 300 300 300	ງ 380 ປ
PLITY PENTY PHTHALATE	J 380 U
3 2 DICHLOROBENZIDINE	J 380 U
DENIZO/NANTHRACENE	380 UJ
CURVEENE	ر 110 J
PIS/2-ETHYLHEXYLIPHTHALATE	່ງ 380 U
DI D OCTVI PHTHALATE	J 380 U
BENZO(NELLIORANTHENE	
PENZOINELLIORANTHENE	J 380 U
PENTO/a)PYRENE	
INDENO(1.2.3.cd)PYRENE	U 380 U
DIRENTO(2 NANTHRACENE	U 380 U
BENZO(g,h,i)PERYLENE 300 30 2000 0 2000	
5 5	1
DILUTION FACTOR: 83 83	87
% SOLIDS	u,

CASE NO CTO143

CEIMIC CORPORATION

TCL AQUEOUS SEMI-VOLATILE ORGANICS (ug/L)

TCL AQUEOUS SEMI-VOLATILE ORGANICS (ugr.)										
			GW-TF4-DUP1		GW-TF4-MW119	GW-TF4-MW120		121	GW-TF4-MW12	!2
STATION ID.			941038-08		941038-09	941038-01	941038-02		941038-10	
LABORATORY ID:			FIELD DUPL	ICA1	TE PAIR					
	0001	MDL/IDL	TIELD DOI L	.,	• • • • • • • • • • • • • • • • • • • •					
ANALYTE	CRQL	MDDIDL								
	40	4	1	J	1 .	J 10 l				U
ACENAPHTHENE	10	1	25	Ü	-	ົບ 25 ໂ				U
2,4-DINITROPHENOL	25	2.5 2.5		Ü		Ū 25 l	25 ر	U		U
4-NITROPHENOL	25	25	1	ı		J 10 l	10 ر	U		U
DIBENZOFURAN	10	1	10	Ü	-	U 10 l	10 ر	U	100	U
2,4-DINITROTOLUENE	10	1	10	U	• -	•	10 ر	U	100	U
DIETHYL PHTHALATE	10	1		_	••	•	10 ر	U	100	U
4-CHLOROPHENYL-PHENYL ETHER	. 10	1	10	U		•	ال		16	J
FLUORENE	10	1	2	J		•	U 25		250	u
4-NITROANILINE	25	2.5	25	U			j 25		250	U
4,6-DINITRO-2-METHYLPHENOL	25	25	25	U			U 10	-		Ū
N-NITROSODIPHENYLAMINE	10	1	10	U	• •	•	- :	-		Ū
N-NITKOSODIFICATIONING	10	1	10	U		•		_	•	Ū
4-BROMOPHENYL-PHENYL ETHER	10	1	10	U	•-	•	<u> </u>	-	•	Ü
HEXACHLOROBENZENE	25	2.5	25	U		-	-			j
PENTACHLOROPHENOL	10	1	3	J	3	•	U 10	_		
PHENANTHRENE	10	1	1	J	• -		U 10	_		
ANTHRACENE	10		10	U	• • •	•	U 10			
DI-n-BUTYLPHTHALATE	10		10	U	•-		U 10			Ü
FLUORANTHENE	10		10	U	• •	- :-	U 10		•	J
CARBAZOLE	10		2	J	2		U 10	-		
PYRENE	10		10	U	10	•	U 10			
BUTYLBENZYLPHTHÂLATE	10	_	10	U	10	0	U 10			
3,3'-DICHLOROBENZIDINE	10		10		10	•	U 1		•	
BENZO(a)ANTHRACENE	10		10		10	U 10	U 10			
CHRYSENE	10		10		10	UJ 10	U 10			
BIS(2-ETHYLHEXYL)PHTHALATE	• -		10	_		U 10	U 1	0 L		
DI-n-OCTYLPHTHALATE	. 10		10		•	Ū 10	U 10	0 L		
BENZO(b)FLUORANTHENE	10		10	_	11		U 1	0 L	ال 100	U
BENZO(k)FLUORANTHENE	10		10	_			U 1	0 L	J 100	U
BENZO(a)PYRENE	10	_	• -	_		•		0 (J 100	U
INDENO(1,2,3-cd)PYRENE	10		10			_	•		100 ل	U
DIBENZO(a,h)ANTHRACENE	10		10			•	_	_		U
BENZO(g,h,i)PERYLENE	10) 1	10	U	10	0 10	•			
Prize (A'm'), prize prize			_		4	1		1	10	
DILUTION FACTOR:			1		1	•		•		
DILUTION 1 ACTOR.										

CEIMIC CORPORATION

TCL AQUEOUS SEMI-VOLATILE ORGANICS (ug/L)

TCL AQUEOUS SEMI-VOLATILE ORGANICS (ug/L)									1	
STATION ID.			GW-TF4-DUP1 941038-08		GW-TF4-MW119 941038-09	GW-TF4-MW120		GW-TF4-MW121 941038-02	GW-TF4-MW 941038-10	122
LABORATORY ID.			FIELD DUPL			••••				
DABONATON ID.			FIELD DOFF	.IUA	IE FAIN					Ţ
ANALYTE	CRQL	MDL/IDL				- 40	• •	10 U	100	U
•	10	1	. 10	U	10 L	·	U	10 U		
PHENOL	10	1	10	U	10 L	, ,-	U		1	_
BIS(2-CHLOROETHYL)ETHER	10	1	10	U	10 L	·	U	10 U	1	
2-CHLOROPHENOL	10	-	10	U	10 L	, , , ,	U	10 U		
1,3-DICHLOROBENZENE	-		10	Ū	10 L	10 ر	U	10 L		
1.4-DICHLOROBENZENE	10		10	Ū	10 l	10 ر	U	10 L	=	
1,2-DICHLOROBENZENE	10		10	Ü	10 (U	10 L		
2-METHYLPHENOL	10		10	Ü		10	U	10 l		
· 2,2'-OXYBIS(1-CHLOROPROPANE)	10		•	_	•-	ارً	Ū	10 L	100 ر	U
	10	•	1 10	U	•-	. 10 . 10	Ü	10 L	J 100	บ
4-METHYLPHENOL .	10	'	1 10	U	• •	- :_	Ü	: : :		บเ
N-NITROSO-DI-n-PROPYLAMINE	10	r '	1 10		• =	•	U		-	
HEXACHLOROETHANE	10		1 10		••	ປ 10	-		- :	_
NITROBENZENE	10		1 10	U	• -	J 10	U	i	- :I	-
ISOPHORONE	10		1 10	U	• • •	U 10	U	11 .		
2-NITROPHENOL	10		1 10	U	10	U 10	U		-	_
2,4-DIMETHYLPHENOL	10		1 10	U	10	U 10	U		-	
BIS(2-CHLOROETHOXY)METHANE	10		1 10		10	U 10	U	••	-	_
2,4-DICHLOROPHENOL	10		1 10		10	U 10	U	: : :	U 10	_
1,2,4-TRICHLOROBENZENE	•		1 1		1	J 10	U	•= .	U 10	
NAPHTHALENE	10		1 10	_	10	U 10	U	•-	U 10	-
4-CHLOROANILINE	10		1 10	_		U 10	U	10	U 10	_
HEXACHLOROBUTADIENE	10		1 10		,	Ū 10	U	10	U 10	_
4-CHLORO-3-METHYLPHENOL	10		1 7			J 10	U	10	U 10	
2-METHYLNAPHTHALENE	10		•	_		U 10	Ū	10	U 10	0 U
HEXACHLOROCYCLOPENTADIENE	10)	1 10		,	U 10	Ū	·	.U . 10	0 U
HEXACHIOROCTOLOFICITION IN THE	10	0	1 10		,		u		Ü 25	io U
2,4,6-TRICHLOROPHENOL	2:	5 2			,			-	U 10	
2,4,5-TRICHLOROPHENOL	1		1 10) U	, ,-	U 10	U	,	U 25	_
2-CHLORONAPHTHALENE	2	_	5 25	5 U	25 ر	U 25	u			00 U
2-NITROANILINE	1	_	1 10) U	10 ر	U 10	u	* :I	-	
DIMETHYLPHTHALATE			1 10		ار 10	U 10	U	,	U 10	_
ACENAPHTHYLENE		0	1 10	-		U 10	U	•	U 10	
2,6-DINITROTOLUENE		0	5 25	_		U 25	U	ر 25	U 25	50 U
3-NITROANILINE	2	5 4	3	, -		_				
9-1411/O/44/EnvE										,

CASE NO CTO143

CEIMIC CORPORATION TOTAL RCRA SOIL METALS (mg/Kg)

STATION ID: LABORATORY ID			SOTF438DUP 941996-22 FIELD DUPI	SOTF4B38323 94199 6 -21 LICATE PAIR	4 SOTF4B423234 941996-23	SOTF4B423638 941996-24	SOTF4B453234 941996-25
ANALYTE	CRDL	IDL					•
ARSENIC BARIUM CADMIUM CHROMIUM LEAD MERCURY SELENIUM SILVER			3 9.3 4 2.8 7 8.9 1 8.9	17 8 12.3 3 1 8 9 7 2 UJ 0 09 U 0 19 U 1 7	U 0 19	11.4 6.4 2.8 16.0 6.6 UJ 0.8 U U 0.19 U	
% SOLIDS			85.1	84.7	84 3	82.9	82

CASE NO CTO143

CEIMIC CORPORATION TOTAL RCRA SOIL METALS (mg/Kg)

STATION ID:	
LABORATORY	'ID:

•	T
SOTF4B453436	SOTF4B45DUP
941996-26	941996-27
FIFI D DUPLICA	ATE PAIR

ANALYTE	CRDL	IDL		
ARSENIC BARIUM CADMIUM CHROMIUM LEAD MERCURY SELENIUM SILVER	1 20 0.5 1 0.3 0.1 0.5	0 2 0.3 0 4 0 7 0.1 0.05 0.2 0.4	11 1 12.3 2 3 12 0 8 2 0 10 UJ 0.18 U 0.79 UJ	11 7 6.1 1 8 9.4 7 1 0 08 UJ 0 16 U 0.84 UJ

CEIMIC CORPORATION TOTAL RCRA AQUEOUS METALS (ug/L)

STATION ID LABORATORY ID:			9410	TF4-DUP1)38-08 ELD DUPLI	9	6W-TF4-MW1 141038-09 E PAIR	19	GW-TF4-MW12 941038-01		GW-TF4-MW121 941038-02	GW-TF4-MW12 941038-10		GW-TF4-MW123 941038-11
ANALYTE	CRDL	IDL											
ARSENIC BARIUM CADMIUM CHROMIUM LEAD MERCURY SELENIUM SILVER	10 200 5 10 3 0 1) ;) 3 2	2 1 3 5 1 01 2	16 4 3 0 5 0 2 9 0.13 2 0	0 0 0 0 0 0	7.5 20 8 3.0 5 0 5.2 0.42 2 0 4.0	7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	11 3 3 0 5 0 1 0 0 13 2 0	0 0 0 0 0	12 6 51 4 3 0 5 2 11.8 0 14 L 2.0 L	496 722 J 0 52 J 20	J	25 8 16 0 0.13 ບຸງ

Total Petroleum Hydrocarbons (Extractables)

EPA Method 8015B GC/FID Fingerprint

Client: Halliburton NUS

Laboratory ID: 940996-25 Client Sample ID: SO-TF4-B-45-3234

Date Sample Prepared: 11/22/94 Date Sample Received: 11/15/94

Concentration in: mg/kg⁺ Date Sample Analyzed: 12/01/94

Target Analyte	Sample Concentration	Method Reporing Limits
O in Thinnes	ND	12
Mineral Spirits (Paint Thinner)	ND	12
JP-4 Jet Fuel	ND	12
Kerosene	ND	12
Jet Fuel A	ND	12
JP-5 Jet Fuel	ND	12
JP-8 Jet Fuel	ND	12
Mineral Oil	ND	12
Naphtha	ND	12
Diesel Fuel	ND	12
Fuel Oil #2	ND	12
Fuel Oil #4	ND	12
Fuel Oil #5	ND	12
Fuel Oil #6	1,200	12
Bunker Oil	ND	12
Motor Oil	ND	12
Hydraulic Jack Oil	ND	12
Transmission Fluid	ND	12
Lubricating Oil	ND	12
Compressor Oil	ND	12
Creosote	PM	6.0
Diesel Range Organics (C10 to C28) Residual Range Organics (C28 to C40)	PM	6.0

ND = Not detected

PM = Pattern matches target analyte

+ = dry weigh basis, solids = 83%

The sample chromatogram was compared to the Target Analytes listed. The reported analyte concentrations are estimated from the most closely matching target analytes.

Reported by:	<u></u>	Approved by:	YL.
неропеа ву:			

Total Petroleum Hydrocarbons (Extractables)

EPA Method 8015B GC/FID Fingerprint

Client: Halliburton NUS

Client Sample ID: SO-TF4-B-45-3436

Laboratory ID: 940996-26

Date Sample Received: 11/15/94

Date Sample Prepared: 11/22/94

Date Sample Analyzed: 12/02/94

Concentration in: mg/kg+

Target Analyte	Sample Concentration	Method Reporting Limits
Thinnes	ND	120
Mineral Spints (Paint Thinner)	ND	120
JP-4 Jet Fuel	ND	120
Kerosene	ND	120
Jet Fuel A	ND	120
JP-5 Jet Fuel	ND	120
JP-8 Jet Fuel	ND	120
Mineral Oil	ND	120
Naphtha	ND	120
Diesel Fuel	ND	120
Fuel Oil #2		120
Fuel Oil #4	ND	120
Fuel Oil #5	ND	120
Fuel Oil #6	ND	120
Bunker Oil	11,000 丁	120
Motor Oil	ND	120
Hydraulic Jack Oil	ND	120
Transmission Fluid	ND	120
Lubricating Oil	ND	
Compressor Oil	ND	120
Creosote	ND	120
Diesel Range Organics (C10 to C28)	PM	60
Residual Range Organics (C28 to C40)	PM	60

ND = Not detected

PM = Pattern matches target analyte

+ = dry weigh basis. solids = 83%

The sample chromatogram was compared to the Target Analytes listed. The reported analyte concentrations are estimated from the most closely matching target analytes.

Approved by: _____kL

Total Petroleum Hydrocarbons (Extractables)

EPA Method 8015B GC/FID Fingerprint

Client: Halliburton NUS

Client Sample ID: SO-TF4-B-45-DUP

Laboratory ID: 940996-27

Date Sample Received: 11/15/94

Date Sample Prepared: 11/22/94

Date Sample Analyzed: 12/01/94

Concentration in: mg/kg+

Farget Analyte	Sample Concentration	Method Reporting Limits
Mineral Spirits (Paint Thinner)	· ND	11
JP - 4 Jet Fuel	ND	11
Kerosene	ND	11
Jet Fuei A	ND	11
JP-5 Jet Fuel	ND	11
	ND	11
JP-8 Jet Fuel	ND	11
Mineral Oil	ND	11
Naphtha	ND	11
Diesel Fuel	ND	11
Fuel Oil #2	ND	11
Fuel Oil #4	ND	11
Fuel Oil #5	ND	11
Fuel Oil #6	ND	11 UJ
Bunker Oil	ND	11
Motor Oil	ND	11
Hydraulic Jack Oil	ND	11
Transmission Fluid .	ND	11
Lubricating Oil	· · · =	11
Compressor Oil	ND	11
Creosote	ND	5.7
Diesel Range Organics (C10 to C28)	ND	5. <i>7</i>
Residual Range Organics (C28 to C40)	ND	J.,

ND = Not detected

The sample chromatogram was compared to the Target Analytes listed. The reported analyte concentrations are estimated from the most closely matching target analytes.

Reported by:	/s	Approved by:	
		•	_

^{+ =} dry weigh basis, solids = 87%

APPENDIX I CHAIN-OF-CUSTODY FORMS



175 Metro Center Boulevard ● Warwick, Rhode Island 02886-1755 (401) 732-3400 ● Fax (401) 732-3499

1232 East Broadway Road, Suite 210 • Tempe, Anzona 85282 (602 303-9535 • Fax (602) 921-2883

CHAIN-OF-CUSTODY RECORD

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175 Metro Center Boulevard Warwick, Rhode Island 02886-1755 (401) 732-3400 ● Fax (401) 732-3499

1232 East Broadway Road, Suite 210 ● Tempe, Arizona 85282 (602 303-9535 Fax (602) 921-2883

CHAIN-OF-CUSTODY RECORD

Page _____ of ____

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COMPANY FATER																		PHON	_		6940	ILAB	REFERE	NCE#:
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WHITE: LABORATORY COPY

YELLOW: REPORT COPY

PINK: CLIENT'S COPY

$\begin{array}{c} \textbf{APPENDIX J} \\ \textbf{CHIP SAMPLES}_{||} \textbf{ANALYTICAL RESULTS} \end{array}$



Client: Foster Wheeler Environmental Corp.

Client Project: DO#13F (Tank Farm #4)

Lab Project: D1138

Date Samples Received: July 8, 1997

Project Narrative

This data package included the analysis result for six concrete samples that were received from Foster Wheeler Environmental Corp. on July 8, 1997. Analyses were performed per specifications in the Chain of Custody form. For reference, a copy of the Mitkem Sample Log-In form is included for cross-referencing the Client sample ID and Laboratory sample ID.

Due to the alkaline nature of the concrete samples, low acid surrogate recoveries were determined for several samples for the Method 8270 analyses.

All of the analyses were performed according to method specifications.

The enclosed data package has been reviewed and is authorized for release as evidenced by the signature below.

Kin S. Chiu

Laboratory Manager



July 25, 1997

Foster Wheeler Environmental Corp. Attn: Mr. Mark Gouveia P.O. Box 4749 Middletown, RI 02842

RE: Client Project #DO# 13F, Tank Farm #4
Lab Project #D1138

Dear Mr. Gouveia:

Enclosed is the Data Report of the required analyses for the samples associated with the Project. If you have any questions regarding the Report, please call me.

We appreciate your business.

Sincerely,

Edward A. Lawler

Laboratory Operations Manager

Kin Chin for EAL

Data Qualifiers:

- J This flag indicates an estimated value due to either
 - the compound was detected at below the Reporting Limit, or
 - estimated concentration for Tentatively Identified Compound
- B This flag indicates the analyte was also detected in the associated Method Blank
- D This flag indicates the analyte concentration was obtained from a diluted analysis
- E This flag indicates the analyte concentration exceeded the Calibration Range
- P This flag is used for Pesticides/PCB/Herbicide analyte when there is a greater than 50% difference for detected concentration between the two GC columns used for Primary and Confirmation analyses. The lower of the two values is reported in the Analysis Report.



Analysis Report: Total Petroleum Hydrocarbons

Client: Foster Wheeler Environmental Corp.

Analysis: Method 418.1

Matrix: Soil

Concentration in: mg/kg, dry weight basis

Leb ID	Client <u>ID</u>	<u>Result</u>	Reporting Limit	% Solid	Analysis Date
Lab ID ID1138-01 ID1138-02 ID1138-03 ID1138-04 ID1138-05 ID1138-06	TK45W3 TK45C1 TK45F1 TK45W2 TK45W1 TK45W4	1,200 1,300 690 760 1,400 1,300	200 1,100 200 190 210 180	95 95 93 95 95 95	7/24/97 7/24/97 7/24/97 7/24/97 7/24/97 7/24/97

QA/QC Method Blank I0722-B1	ND	22	7/24/97
Lab control Spike (% Recovery) 10722-LCS1	108%	ND	7/24/ 97



Analysis Report: Volatile Organic Compounds

Client Foster Wheeler Environmental Corp.

Client ID: TK45C1 Lab ID: D1138-02

Analysis: Method 8260

Analysis Date: 7/22/97 Matrix: Soil, 94% solids

Concentration in: ug/kg, dry weight basis

Dilution: 1

		Reporting
<u>Analyte</u>	Results	<u>Limits</u>
Dichlorodifluoromethane	ND	£
Chloromethane		5
Vinyl chloride	ND ND	5
Bromomethane	ND	5
Chloroethane	ND	5
Trichlorofluoromethane	ND	5 5
1,1-Dichloroethene	ND	5 5
Carbon disulfide	ND	5
Iodomethane	ND	5 5
Acetone	9	5
Methylene chloride	ND	. 5
trans-1,2-Dichloroethene	ND	. 5
1,1-Dichloroethane	ND	5
Vinyl acetate	ND	5 5
2,2-Dichloropropane	ND	5
cis-1,2-Dichloroethene	ND	5
Methyl ethyl ketone	ND	5
Bromochloromethane	ND	5
Chloroform	ND	5
1,1,1-Trichloroethane	ND	5
Carbon tetrachloride	ND	5
1,1-Dichloropropene	ND	5
Benzene	ND	5
1,2-Dichloroethane	ND	5
Trichloroethene	ND	5
1,2-Dichloropropane	ND	5
Dibromomethane	ND	5
Bromodichloromethane	ND	5
2-Chloroethyl vinyl ether	ND	5
cis-1,3-Dichloropropene	ND	5
4-Methyl-2-pentanone	ND	5
Toluene	ND	5
trans-1,3-Dichloropropene	NO	5
1,1,2-Trichloroethane	ND	5
Tetrachloroethene	ND	5
1,3-Dichloropropane	ND	5



Client ID: TK45C1

Lab ID: D1138-02

		Reporting
Analyte	Results	Limits
2-Hexanone	ND	5
Dibromochloromethane	ND	5
1,2-Dibromoethane (EDB)	ND	5
Chlorobenzene	ND	5
1,1,1,2-Tetrachloroethane	ND	5
Ethylbenzene	9	5
Xylenes, total	49	5
Styrene	ND	5
Bromoform	ND	5
Isopropylbenzene	10	5
Bromobenzene	ND	5
1,1,2,2-Tetrachloroethane	ND	5
1,2,3-Trichloropropane	ND	5
n-Propyibenzene	15	5
2-Chlorotoluene	ND	5
4-Chlorotoluene	ND	5
1,3,5-Trimethylbenzene	27	5
tert-Butylbenzene	ND	5
1,2,4-Trimethylbenzene	100	5
sec-Butylbenzene	10	5
1,3-Dichlorobenzene	ND	5
4-Isopropyltoluene	8	5
1,4-Dichlorobenzene	ND	5
1,2-Dichlorobenzene	ND	5
n-Butylbenzene	ND	5
1,2-Dibromo-3-chloropropane	ND	5
1,2,4-Trichlorobenzene	ND	5
Hexachlorobutadiene	ND	5
1,2,3-Trichlorobenzene	ND	5
MTBE	ND	5
Naphthalene	90	5

QC Batch: V1B0722A

Surrogate	Recovery:
-----------	-----------

1,2-Dichloroethane-d4	113%
Toluene-d8	105%
Bromofluorobenzene	99%

ND = Not detected

10 100 00.40 LVV 401 107 0400 THITTE ACTION



Analysis Report: TCLP Metals

Client: Foster Wheeler Environmental Corp.

Client ID: TK45C1 Lab ID: D1138-02

Analysis Method: 7470A (Mercury) 6010A (Others)

Matrix: TCLP Leachate

Concentration in: mg/L Analysis Date: 7/24/97

Analyte	Results	Reporting <u>Limits</u>
Arsenic	ND	0.01
Barium	0,26	0.01
Cadmium	ND	0.002
Chromium	ND	0.01
Lead	ND	0.01
Mercury	ND	0.002
Selenium	0.04	0.02
Silver	ND	0.02

QC Batch: MT0722B1

ND = Not detected



Analysis Report: Semivolatile Organic Compounds

Client: Foster Wheeler Environmental Corp.

Client ID: TK 45 C1 Lab ID: D1138-02

Analysis: Method 8270

Analysis Date: 7/24/97

Matrix: Concrete, 95% solids

Concentration in: ug/kg, dry weight basis

Dilution: 5

		Reporting
<u>Analyte</u>	<u>Results</u>	Limits
		
Phenoi	ND	1,700
bis(2-Chloroethyl)ether	ND	1,700
2-Chlorophenol	ND	1,700
1,3-Dichlorobenzene	ND	1,700
1,4-Dichlorobenzene	ND	1,700
1,2-Dichlorobenzene	ND	1,700
2-Methylphenol	ND	1,700
2,2'-oxybis(1-Chioropropane)	ND ·	1,700
4-Methylphenol	ND	1,700
n-Nitroso-di-n-propylamine	ND	1,700
Hexachioroethane	ND	1,700
Nitrobenzene	ND	1,700
Isophorone	ND	1,700
2-Nitrophenol	ND	1,700
2,4-Dimethylphenol	ND	1,700
bis(2-Chloroethoxy)methane	ND	1,700
2,4-Dichlorophenol	ND	1,700
1,2,4-Trichlorobenzene	ND	1,700
Naphthalene	750 J	1,700
4-Chloroaniline	ND	1,700
Hexachlorobutadiene	ND	1,700
4-Chioro-3-methylphenol	ND	1,700
2-Methylnaphthalene	2,900	1,700
Hexachlorocyclopentadiene	ND	1,700
2,4,6-Trichlorophenol	ND	1,700
2,4,5-Trichlorophenol	ND	4,400
2-Chloronaphthalene	ND	1,700
2-Nitroaniline	ND	4,400
Dimethylphthalate	ND	1,700
Acenaphthylene	ND	1,700
2,6-Dinitrotoluene	ND	1,700
3-Nitroaniline	ND	4,400
Acenaphthene	210 J	1,700
2,4-Dinitrophenol	ND	4,400
4-Nitrophenol	ND	4,400
Dibenzofuran	ND	1,700
2,4-Dinitrotoluene	ND	1,700



Client ID: TK 45 C1

Lab ID: D1138-02

Analyte	Results	Reporting <u>Limits</u>	
	Tresono	Litties	
Diethylphthalate	ND	1,700	
Fluorene	240 J	1,700	
4-Chlorophenyl-phenylether	ND	1,700	
4-Nitroaniline	ND	4,400	
4,6-Dinitro-2-methylphenol	ND	4,400	
n-Nitrosodiphenylamine	ND	1,700	
4-Bromophenyl-phenylether	ND	1,700	
Hexachlorobenzene	ND	1,700	
Pentachlorophenol	ND	4,400	
Phenanthrene	780 J	1,700	
Anthracene	ND	1,700	
Di-n-butylphthalate	ND	1,700	
Carbazole	ND	1,700	
Fluoranthene	ND	1,700	
Pyrene	240 J	1,700	
Butylbenzylphthalate	ND	1,700	
Benzo(a)anthracene	ND	1,700	
Chrysene	ND	1,700	
3,3'-Dichlorobenzidine	ND	1,700	
bis(2-Ethylhexyl)phthalate	1,500 J	1,700	
Dı-n-octylphthalate	ND	1,700	
Benzo(b)fluoranthene	ND	1,700	
Benzo(k)fluoranthene	ND	1,700	
Benzo(a)pyrene	ND	1,700	
Indeno(1,2,3-cd)pyrene	ND	1,700	
Dibenz(a,h)anthracene	ND	1,700	
Benzo(g,h,i)perylene	ND	1,700	
·		QC Batch: S0723-E	31
Surrogate Recovery.			
2-Fluorophenol	32%		
Phenol-d5	56%		
2-Chlorophenol-d4	44%		

24%

82%

76%

82%

106%

ND = Not detected

Nitrobenzene-d5

2-Fluorobiphenyl

p-Terphenyl-d14

2,4,6-Tribromophenol

1,2-Dichlorobenzene-d4



Client: Foster Wheeler Environmental Corp.

Client Project: DO#13F (Tank Farm #4)

Lab Project: D1138

Date Samples Received: July 8, 1997

Project Narrative

This data package included the analysis result for six concrete samples that were received from Foster Wheeler Environmental Corp. on July 8, 1997. Analyses were performed per specifications in the Chain of Custody form. For reference, a copy of the Mitkem Sample Log-In form is included for cross-referencing the Client sample ID and Laboratory sample ID.

Due to the alkaline nature of the concrete samples, low acid surrogate recoveries were determined for several samples for the Method 8270 analyses.

All of the analyses were performed according to method specifications.

The enclosed data package has been reviewed and is authorized for release as evidenced by the signature below.

Kin S. Chiu

Laboratory Manager



July 25, 1997

Foster Wheeler Environmental Corp. Attn: Mr. Mark Gouveia P.O. Box 4749 Middletown, RI 02842

RE: Client Project #DO# 13F, Tank Farm #4
Lab Project #D1138

Dear Mr. Gouveia:

Enclosed is the Data Report of the required analyses for the samples associated with the Project. If you have any questions regarding the Report, please call me.

We appreciate your business.

Sincerely,

Edward A. Lawler

Laboratory Operations Manager

Kin Chin for EAL



Analysis R port: Total Petroleum Hydrocarbons

Client: Foster Wheeler Environmental Corp.

Analysis: Method 418.1

Matrix: Soil

Concentration in: mg/kg, dry weight basis

<u>Lab ID</u>	Client ID	Result	Reporting <u>Limit</u>	% Solid	Analysis Date
ID1138-01	TK45W3 TK45C1 TK45F1 TK45W2 TK45W1 TK45W4	1,200	200	95	7/24/97
ID1138-02		1,300	1,100	95	7/24/97
ID1138-03		690	200	93	7/24/97
ID1138-04		760	190	95	7/24/97
ID1138-05		1,400	210	95	7/24/97
ID1138-06		1,300	180	95	7/24/97

QA/QC Method Blank 10722-B1	ND	22	7/24/97
Lab control Spike (% Recovery) 10722-LCS1	108%	ND	7/24/ 97



Analysis Report: Volatile Organic Compounds

Client. Foster Wheeler Environmental Corp

Client ID: TK45F1 Lab ID: D1138-03 Analysis: Method 8260 Analysis Date: 7/22/97 Matrix: Soil, 92% solids

Concentration in: ug/kg, dry weight basis

Dilution: 1.04

<u>Analyte</u>	Results	Reporting <u>Limits</u>
Dichlorodifluoromethane	ND	6
Chloromethane	ND	6
Vinyl chloride	ND	6
Bromomethane	ND	6
Chloroethane	ND	6
Trichlorofluoromethane	ND	6
1,1-Dichloroethene	ND	6
Carbon disulfide	ND	6
Iodomethane	ND	6
Acetone	40	6
Methylene chloride	ND	6
trans-1,2-Dichloroethene	ND	6
1,1-Dichloroethane	ND	6
Vinyl acetate	ND	6
2,2-Dichloropropane	ND	6
cis-1,2-Dichloroethene	ND	6
Methyl ethyl ketone	7	. 6
Bromochloromethane	ND	6
Chloroform	ND	6
1,1,1-Trichloroethane	ND	6
Carbon tetrachloride	ND	6
1,1-Dichloropropene	ND -	6
Benzene	ND	6
1,2-Dichloroethane	ND	6
Trichloroethene	ND	6
1,2-Dichloropropane	ND	6
Dibromomethane	ND	6
Bromodichloromethane	ND	6
2-Chloroethyl vinyl ether	ND	6
cis-1,3-Dichloropropene	ND	6
4-Methyl-2-pentanone	ND	6
Toluene	ND	6
trans-1,3-Dichloropropene	ND	6
1,1,2-Trichloroethane	ND	6
Tetrachloroethene	ND	6
1,3-Dichloropropane	ND	6



Client ID: TK45F1

Lab ID: D1138-03

		Reporting
Analyte	<u>Results</u>	Limits
2-Hexanone	ND	6
Dibromochloromethane	ND	6
1,2-Dibromoethane (EDB)	ND	6
Chlorobenzene	ND	6
1,1,1,2-Tetrachloroethane	ND	6
Ethylbenzene	ND	6
Xylenes, total	ND	6
Styrene	ND	6
Bromoform	ND	6
Isopropylbenzene	ND	6
Bromobenzene	ND	6
1,1,2,2-Tetrachloroethane	ND	6
1,2,3-Trichloropropane	ND	6
п-Propylbenzene	ND	5
2-Chlorotoiuene	ND	6
4-Chlorotoluene	ND	6
1,3,5-Trimethylbenzene	ND	6
tert-Butylbenzene	ND	6
1,2,4-Trimethylbenzene	15	6
sec-Butylbenzene	ND	6
1,3-Dichlorobenzene	ND	6
4-Isopropyltoluene	ND	6
1,4-Dichlorobenzene	ND	6
1,2-Dichlorobenzene	ND	6
n-Butylbenzene	ND	6
1,2-Dibromo-3-chloropropane	ND	6
1,2,4-Trichlorobenzene	ND	6
Hexachlorobutadiene .	ND	6
1,2,3-Trichlorobenzene	ND	6
MTBE	ND	6
Naphthalene	25	6

QC Batch; V1B0722A

Sur	rogate	Recover	ry:
4 2	Minhi-		٠.

1,2-Dichloroethane-d4	109%
Toluene-d8	111%
Bromofluorobenzene	102%

ND = Not detected



Analysis Report: TCLP Metals

Client: Foster Wheeler Environmental Corp.

Client ID: TK45F1

Lab ID: D1138-03 Analysis Method: 7470A (Mercury)

6010A (Others)

Matrix: TCLP Leachate Concentration in: mg/L

Analysis Date: 7/24/97

		Reporting
Analyte	Results	Limits
Arsenic	ND	0.01
Barium	0.18	0.01
Cadmium	ND	0.002
Chromium	ND	0.01
Lead	ND	0.01
Mercury	ND	0.002
Selenium	0.04	0.02
Silver	ND	0.02

QC Batch: MT0722B1

ND = Not detected

Page 1 of 1 D1138-03



Analysis Report: Semivolatile Organic Compounds

Client: Foster Wheeler Environmental Corp.

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Client ID: TK 45 F1 Lab ID: D1138-03

Analysis. Method 8270

Analysis Date: 7/28/97

Matrix: Concrete, 93% solids

Concentration in: ug/kg, dry weight basis

Dilution: 1

Analyte	Results	Reporting <u>Limits</u>
Phenol	ND	320
bis(2-Chloroethyl)ether	ND	320
2-Chlorophenol	ND	320
1,3-Dichlorobenzene	ND	320
1,4-Dichlorobenzene	ND	320
1,2-Dichlorobenzene	ND	320
2-Methylphenol	ND	320
2,2'-oxybis(1-Chloropropane)	ND	320
4-Methylphenol	ND	320
n-Nitroso-di-n-propylamine	ND	320
Hexachioroethane	ND	320
Nitrobenzene	ND	320
Isophorone	ND	320
2-Nitrophenol	ND	320
2,4-Dimethylphenol	ND	320
bis(2-Chloroethoxy)methane	ND	320
2,4-Dichlorophenol	ND	320
1,2,4-Trichlorobenzene	ND	320
Naphthalene	NO	320
4-Chloroaniline	ND	320
Hexachlorobutadiene	ND	320
4-Chloro-3-methylphenol	ND	320
2-Methylnaphthalene	93 J	320
Hexachlorocyclopentadiene	ND	320
2,4,6-Tnchlorophenol	ND	320
2,4,5-Trichlorophenol	ND	800
2-Chloronaphthalene	ND	320
2-Nitroaniline	ND	800
Dimethylphthalate	ND	320
Acenaphthylene	ND	320
2,6-Dinitrotoluene	ND	320
3-Nitroaniline	ND	800
Acenaphthene	ND	320
2,4-Dintrophenol	ND	800
4-Nitrophenol	ND	800
Dibenzofuran	ND	320
2,4-Dinitrotoluene	ND	320

Page 1 of 2 D1138-03



Client ID: TK 45 F1 Lab ID: D1138-03

		Reporting
Analyte	Results	Limits
Diethylphthalate	ND .	320
Fluorene	ND	320
4-Chlorophenyl-phenylether	ND	320
4-Nitroaniline	ND	800
4,6-Dinitro-2-methylphenol	ND	800
n-Nitrosodiphenylamine	ND	320
4-Bromophenyl-phenylether	ND	320
Hexachlorobenzene	ND	320
Pentachiorophenol	ND	800
Phenanthrene	ND	320
Anthracene	ND	320
Di-n-butylphthalate	ND	320
Carbazole	ND	320
Fluoranthene	ND	320
Pyrene	ND	320
Butylbenzylphthalate	ND	320
Benzo(a)anthracene	ND	320
Chrysene	ND	320
3,3'-Dichlorobenzidine	ND	320
bis(2-Ethylhexyl)phthalate	430	320
Di-n-octylphthalate	ND	320
Benzo(b)fluoranthene	ND	320
Benzo(k)fluoranthene	ND	320
Benzo(a)pyrene	ND	320
Indena(1,2,3-cd)pyrene	ND	320
Dibenz(a,h)anthracene	ND	320
Benzo(g,h,i)perylene	ND	320

QC Batch: S0723-B1

Surrogate Recovery:	
2-Fluorophenol	21% '
Phenol-d5	46%
2-Chlorophenol-d4	28%
2,4,6-Tribromophenol	18% 1
1,2-Dichlorobenzene-d4	62%
Nitrobenzene-d5	69%
2-Fluorobiphenyl	75%
p-Temhenyl-d14	88%

ND = Not detected

* Out of control limits



Client: Foster Wheeler Environmental Corp.

Client Project: DO#13F (Tank Farm #4)

Lab Project: D1138

Date Samples Received: July 8, 1997

Project Narrative

This data package included the analysis result for six concrete samples that were received from Foster Wheeler Environmental Corp. on July 8, 1997. Analyses were performed per specifications in the Chain of Custody form. For reference, a copy of the Mitkem Sample Log-In form is included for cross-referencing the Client sample ID and Laboratory sample ID.

Due to the alkaline nature of the concrete samples, low acid surrogate recoveries were determined for several samples for the Method 8270 analyses.

All of the analyses were performed according to method specifications.

The enclosed data package has been reviewed and is authorized for release as evidenced by the signature below.

Kin S. Chiu

Laboratory Manager



July 25, 1997

Foster Wheeler Environmental Corp. Attn: Mr. Mark Gouveia P.O. Box 4749 Middletown, RI 02842

RE: Client Project #DO# 13F, Tank Farm #4

Lab Project #D1138

Dear Mr. Gouveia:

Enclosed is the Data Report of the required analyses for the samples associated with the Project. If you have any questions regarding the Report, please call me.

We appreciate your business.

Sincerely,

Edward A. Lawler

Laboratory Operations Manager

Kin Chin for EAL



Analysis Report: Total Petroleum Hydrocarbons

Client: Foster Wheeler Environmental Corp.

Analysis: Method 418.1

Matrix: Soil

Concentration in: mg/kg, dry weight basis

Concentratio	n in: mg/kg, dry weight basis				
Lab ID	Client ID	Result	Reporting <u>Limit</u>	% Solid	Analysis Date
ID1138-01 ID1138-02 ID1138-03 ID1138-04 ID1138-05 ID1138-06	TK45W3 TK45C1 TK45F1 TK45W2 TK45W1 TK45W4	1,200 1,300 690 760 1,400 1,300	200 1,100 200 190 210 180	95 93 95 95 95	7/24/97 7/24/97 7/24/97 7/24/97 7/24/97 7/24/97
QA/QC Method Bla 10722-E		ND	22		7/24/97
Lab contro	I Spike (% Recovery) CS1	108%	ND		7 <i>1</i> 24/97



Analysis Report: Volatile Organic Compounds

Client: Foster Wheeler Environmental Corp.

Client ID: TK45W1 Lab ID: D1138-05

Analysis: Method 8260

Analysis Date: 7/22/97 Matrix: Soil, 95% solids

Concentration in: ug/kg, dry weight basis

Dilution: 1.14

		Reporting
<u>Analyte</u>	<u>Results</u>	Limits
Dichlorodifluoromethane	ND	•
Chloromethane	ND '	6
Vinyl chloride	ND ND	6
Bromomethane	ND	6
Chloroethane	ND ND	5 6
Trichlorofluoromethane	ND	6
1,1-Dichloroethene	ND ND	6
Carbon disulfide	ND	6
lodomethane	ND ND	6
Acetone	17	6
Methylene chloride	ND	6
trans-1,2-Dichloroethene	ND	6
1,1-Dichloroethane	ND	6
Vinyl acetate	ND	6
2,2-Dichloropropane	ND	6
cis-1,2-Dichloroethene	ND	6
Methyl ethyl ketone	8	6
Bromochloromethane	ND	6
Chloroform	ND	6
1,1,1-Trichloroethane	ND	6
Carbon tetrachloride	ND	6
1,1-Dichloropropene	ND	6
Benzene	ND	6
1,2-Dichloroethane	ND	6
Trichloroethene	ND	6
1,2-Dichloropropane	ND	6
Dibromomethane	ND	6
Bromodichloromethane	ND	6
2-Chloroethyl vinyl ether	ND	6
cis-1,3-Dichloropropene	ND	6
4-Methyl-2-pentanone	ND	6
Toluene	70	6
trans-1,3-Dichloropropene	ND	6
1,1,2-Trichloroethane	ND	6
Tetrachloroethene	ND	6
1,3-Dichloropropane	ND	6



Client ID: TK45W1 | Lab ID: D1138-05

		Reporting
<u>Analyte</u>	Results	<u>Limits</u>
2-Hexanone	ND	6
Dibromochloromethane	ND	6
1,2-Dibromoethane (EDB)	ND	, 6
Chlorobenzene	ND	6
1,1,1,2-Tetrachloroethane	, ND	6
Ethylbenzene	80	6
Xylenes, total	410	6
Styrene	ND	6
Bromoform	ND	6
Isopropylbenzene	57	6
Bromobenzene	ND	6
1,1,2,2-Tetrachloroethane	ND	6
1,2,3-Trichloropropane	ND	6
n-Propylbenzene	87	6
2-Chlorotoluene	ND	6
4-Chlorotoluene	ND	6
1,3,5-Trimethylbenzene	190	6
tert-Butylbenzene	ND	6
1,2,4-Trimethylbenzene	750 D	6
sec-Butylbenzene	32	6
1,3-Dichlorobenzene	ND	6
4-Isopropyltoiuene	37	6
1,4-Dichlorobenzene	ND	6
1,2-Dichlorobenzene	ND	6
n-Butylbenzene	ND	6
1,2-Dibromo-3-chloropropane	ND	6
1,2,4-Trichlorobenzene	ND	6
Hexachlorobutadiene -	ND	6
1,2,3-Tnchlorobenzene	ND	6
MTBE	ND	6
Naphthalene	550 D	6

QC Batch: V1B0722A

Surrogate Recovery:

1,2-Dichloroethane-d4

Toluene-d8

Bromofluorobenzene

86%

ND = Not detected

^{*}Outside of control limits due to matrix effect, verified by reanalysis (% recovery in diluted sample = 115%)



Analysis Report: TCLP Metals

Client: Foster Wheeler Environmental Corp.

Client ID: TK45W1 Lab ID: D1138-05

Analysis Method: 7470A (Mercury) 6010A (Others)

Matrix: TCLP Leachate Concentration in: mg/L Analysis Date: 7/24/97

		Reporting
Analyte	Results	<u>Limits</u>
Arsenic	ND	0.01
Barium	0.25	0.01
Cadmium	ND	0.002
Chromium	ND	0.01
Lead	ND	0.01
Mercury	0.03	0.002
Selenium	0.04	0.02
Silver	ND	0.02

QC Batch: MT0722B1

ND = Not detected



Analysis Report: Semivolatile Organic Compounds

Client: Foster Wheeler Environmental Corp.

Client ID: TK 45 W1 Lab ID: D1138-05

Analysis: Method 8270

Analysis Date: 7/26/97 Matrix: Concrete, 95% solids

Concentration in: ug/kg, dry weight basis

Dilution: 5

		Reporting
<u>Analyte</u>	<u>Results</u>	Limits
- 1 - 1 - 1		
Phenol	ND	1,600
bis(2-Chloroethyl)ether	ND	1,600
2-Chlorophenol	ND	1,600
1,3-Dichlorobenzene	ND	1,600
1,4-Dichlorobenzene	ND	1,600
1,2-Dichlorobenzene	ND	1,600
2-Methylphenol	ND	1,600
2,2'-oxybis(1-Chloropropane)	ND	1,600
4-Methylphenol	ND	1,600
n-Nitroso-di-n-propylamine	ND	1,600
Hexachloroethane	ND	1,600
Nitrobenzene	ND	1,600
Isophorone	ND	1,600
2-Nitrophenol	ND	1,600
2,4-Dimethylphenol	ND	1,600
bis(2-Chloroethoxy)methane	ND	1,600
2,4-Dichlorophenol	ND	1,600
1,2,4-Tnchlorobenzene	ND	1,600
Naphthalene	230 J	1,600
4-Chloroaniline	ND	1,600
Hexachlorobutadiene	ND	1,600
4-Chloro-3-methylphenol	ND	1,600
2-Methylnaphthalene	1,200 J	1,600
Hexachlorocyclopentadiene	ND	1,600
2,4,6-Trichlorophenol	ND	1,600
2,4,5-Trichlorophenol	ND	4,100
2-Chloronaphthalene	ND	1,600
2-Nitroaniline	ND	4,100
Dimethylphthalate	ND	1,600
Acenaphthylene	ND	1,600
2,6-Dinitrotoluene	ND	1,600
3-Nitroaniline	ND	4,100
Acenaphthene	ND	1,600
2,4-Dinitrophenol	ND	4,100
4-Nitrophenol	ND	4,100
Dibenzofuran	ND	1,600
2,4-Dinitrotoluene	ND	1,600

Page 1 of 2 D1138-05



Client ID: TK 45 W1

Lab ID: D1138-05

		Reporting	
Analyte	<u>Results</u>	Limits	
Diethylphthalate	ND	1,600	
Fluorene	ND	1,600	
4-Chlorophenyl-phenylether	ND	1,600	
4-Nitroaniline	ND	4,100	
4,6-Dinitro-2-methylphenol	ND	4,100	
n-Nitrosodiphenylamine	ND	1,600	
4-Bromophenyi-phenylether	ND	1,600	
Hexachlorobenzene	ND	1,600	
Pentachlorophenol	ND	4,100	
Phenanthrene	370 J	1,600	
Anthracene	ND	1,600	
Di-n-butylphthalate	ND	1,600	
Carbazole	ND	1,600	
Fluoranthene	ND	1,600	
Pyrene	ND	1,600	
Butylbenzylphthalate	ND	1,600	
Benzo(a)anthracene	ND	1,600	
Chrysene	ND	1,600	
3,3'-Dichlorobenzidine	ND	1,600	
bis(2-Ethylhexyl)phthalate	ND	1,600	
Di-n-octy/phthalate	ND	1,600	
Benzo(b)fluoranthene	ND	1,600	
Benzo(k)fluoranthene	ND	1,600	
Benzo(a)pyrene	ND	1,600	
Indeno(1,2,3-cd)pyrene	ND	1,600	
Dibenz(a,h)anthracene	ND	1,600	
Benzo(g,h,i)perylene	ND	1,600	
		QC Batch: S	0723-B1
Surrogate Recovery:			
2-Fluorophenol	40%		
Phenoi-d5	60%		
2-Chlorophenol-d4	52%		
2,4,6-Tribromophenol	38%		
1,2-Dichlorobenzene-d4	75%		
Nitrobenzene-d5	81%		
2-Fluorobiphenyl	88%		
p-Terphenyl-d14	100%		

ND = Not detected

Page 2 of 2 D1138-05



Client: Foster Wheeler Environmental Corp.

Client Project: DO#13F (Tank Farm #4)

Lab Project: D1138

Date Samples Received: July 8, 1997

Project Narrative

This data package included the analysis result for six concrete samples that were received from Foster Wheeler Environmental Corp. on July 8, 1997. Analyses were performed per specifications in the Chain of Custody form. For reference, a copy of the Mitkem Sample Log-In form is included for cross-referencing the Client sample ID and Laboratory sample ID.

Due to the alkaline nature of the concrete samples, low acid surrogate recoveries were determined for several samples for the Method 8270 analyses.

All of the analyses were performed according to method specifications.

The enclosed data package has been reviewed and is authorized for release as evidenced by the signature below.

Kin S. Chiu

Laboratory Manager



July 25, 1997

Foster Wheeler Environmental Corp. Attn: Mr. Mark Gouveia P.O. Box 4749 Middletown, RI 02842

RE: Client Project #DO# 13F, Tank Farm #4
Lab Project #D1138

Dear Mr. Gouveia:

Enclosed is the Data Report of the required analyses for the samples associated with the Project. If you have any questions regarding the Report, please call me.

We appreciate your business.

Sincerely,

Edward A. Lawler

Laboratory Operations Manager

Kin Chin for EAL



Analysis Report: Total Petroleum Hydrocarbons

Result

Reporting

<u>Limit</u>

% Solid

Client: Foster Wheeler Environmental Corp.

Analysis: Method 418.1

Matrix: Soil

Lab ID

Concentration in: mg/kg, dry weight basis

Client ID

ID1138-01 ID1138-02 ID1138-03 ID1138-04 ID1138-05 ID1138-06	TK45W3 TK45C1 TK45F1 TK45W2 TK45W1 TK45W4	1,200 1,300 690 760 1,400 1,300	200 1,100 200 190 210 180	95 95 93 95 95 95	7/24/97 7/24/97 7/24/97 7/24/97 7/24/97
QA/QC Method Bla 10722-8		ND	22		7/24/97
Lab control 10722-LC	l Spike (% Recovery) SS1	108%	ND		7/24/97

Analysis Date



Analysis Report: Volatile Organic Compounds

Client: Foster Wheeler Environmental Corp.

Client ID: TK45W2 Lab ID: D1138-04

Analysis: Method 8260

Analysis Date: 7/22/97 Matrix: Soil, 96% solids

Concentration in: ug/kg, dry weight basis

Dilution: 0.96

		Reporting
<u>Analyte</u>	<u>Results</u>	Limits
Dichlorodifluoromethane	ND	_
Chloromethane	ND	5
Vinyl chloride	ND	5
Bromomethane	ND	5
Chloroethane	ND	. 5
Trichlorofluoromethane	ND	5
1,1-Dichioroethene	ND	5
Carbon disulfide	ND	5
lodomethane	ND	5
Acetone	ND	5
	13	5
Methylene chloride	ND	5
trans-1,2-Dichloroethene	ND	5
1.1-Dichloroethane	ND	5
Vinyl acetate	ND	5
2,2-Dichloropropane	ND	5
cis-1,2-Dichloroethene	ND	5
Methyl ethyl ketone	ND	5
Bromochloromethane	ND	5
Chloroform	ND	5
1,1,1-Trichloroethane	ND	5
Carbon tetrachloride .	ND	5
1,1-Dichloropropene	ND	5
Benzene	ND	5
1,2-Dichloroethane	ND	5
Trichloroethene	ND	5
1,2-Dichloropropane	ND	5
Dibromomethane	ND	5
Bromodichloromethane	ND	5
2-Chloroethyl vinyl ether	ND	5
cis-1,3-Dichloropropene	ND	5
4-Methyl-2-pentanone	ND	5
Toluene	ND	5
trans-1,3-Dichloropropene	ND	5
1,1,2-Trichloroethane	ND	5
Tetrachioroethene	ND	5
1,3-Dichloropropane	ND	5



Client ID: TK45W2 Lab ID: D1138-04

		Reporting
<u>Analyte</u>	<u>Results</u>	<u>Limits</u>
2-Hexanone	ND	5
Dibromochloromethane	ND	5
1,2-Dibromoethane (EDB)	ND	5
Chlorobenzene	ND	5
1,1,1,2-Tetrachloroethane	ND	5
Ethylbenzene	ND	5
Xylenes, total	25	5
Styrene	ND	5
Bromoform	ND	5
Isopropylbenzene	ND	5
Bromobenzene	ND	5
1,1,2,2-Tetrachloroethane	ND	5
1,2,3-Trichloropropane	ND	5
n-Propylbenzene	8	5
2-Chlorotoluene	ND	5
4-Chlorotoluene	ND	5
1,3,5-Trimethylbenzene	20	5
tert-Butylbenzene	ND	5
1,2,4-Trimethylbenzene	73	5
sec-Butylbenzene	ND	5
1,3-Dichlorobenzene	ND	5
4-isopropyltoluene	6	5
1,4-Dichlorobenzene	ND	5
1,2-Dichlorobenzene	ND	5
n-Butylbenzene	ND	5
1,2-Dibromo-3-chloropropane	ND	5
1,2,4-Trichlorobenzene	ND	5
Hexachlorobutadiene -	ND	5
1,2,3-Tnchlorobenzene	ND	5
MTBE	ND	5
Naphthalene	87	5
		<u> </u>

QC Batch: V1B0722A

Surrogate Recovery:

1,2-Dichloroethane-d4	112%
Toluene-d8	105%
Bromofluorobenzene	91%



Analysis Report: TCLP Metals

Client: Foster Wheeler Environmental Corp.

Client ID: TK45W2

Lab ID: D1138-04

Analysis Method: 7470A (Mercury) 6010A (Others)

Matrix: TCLP Leachate

Concentration in: mg/L

Analysis Date: 7/24/97

		Reporting
Analyte	<u>Results</u>	Limits
Arsenic	ND	0.01
Barium	0.12	0.01
Cadmium	ND	0.002
Chromium	ND	0.01
Lead	ND	0.01
Mercury	ND	0.002
Selenium	0.04	0.02
Silver	ND	0.02

QC Batch: MT0722B1



Analysis Report: Semivolatile Organic Compounds

Client: Foster Wheeler Environmental Corp.

Client ID: TK 45 W2 Lab ID: D1138-04 Analysis Method 8270 Analysis Date: 7/28/97

Matrix: Concrete, 95% solids

Concentration in: ug/kg, dry weight basis

Dilution: 5

<u>Analyte</u>	Results	Reporting Limits
Phenol	ND	1,600
bis(2-Chloroethyl)ether	ND	1,600
2-Chlorophenol	ND	1,600
1,3-Dichlorobenzene	ND	1,600
1,4-Dichlorobenzene	ND	1,600
1,2-Dichlorobenzene	ND	1,600
2-Methylphenol	ND	1,600
2,2'-oxybis(1-Chloropropane)	ND	1,600
4-Methylphenol	ND	1,800
n-Nitroso-di-n-propylamine	ND	1,600
Hexachloroethane	ND	1,600
Nitrobenzene	ND	1,600
Isophorone	· ND	1,600
2-Nitrophenol	ND	1,600
2,4-Dimethylphenol	ND	1,600
bis(2-Chloroethoxy)methane	ND	1,600
2,4-Dichlorophenol	ND	1,600
1,2,4-Trichlorobenzene	ND	1,600
Naphthalene	22 0 J	1,600
4-Chloroaniline	ND	1,600
Hexachlorobutadiene	ND	1,600
4-Chioro-3-methylphenol	ND	1,600
2-Methylnaphthalene	930 J	1,600
Hexachlorocyclopentadiene	ND	1,600
2,4,6-Trichlorophenol	ND	1,600
2,4,5-Trichlorophenol	ND	4,100
2-Chioronaphthalene	ND	1,600
2-Nitroaniline	ND	4,100
Dimethylphthalate	ND	1,600
Acenaphthylene	ND	1,600
2.6-Dinitrotoluene	ND	1,600
3-Nitroaniline	ND	4,100
Acenaphthene	ND	1,600
2,4-Dinitrophenol	ND	4,100
4-Nitrophenol	ND	4,100
Dibenzofuran	ND	1,600
2,4-Dinitrotoluene	ND	1,600



Client ID: TK 45 W2

Lab ID: D1138-04

	•	Reporting	
<u>Analyte</u>	Results	<u>Limits</u>	
Diethylphthalate	ND .	1,600	
Fluorene	ND	1,600	
4-Chlorophenyl-phenylether	ND	1,600	
4-Nitroaniline	ND	4,100	
4,6-Dinitro-2-methylphenol	ND	4,100	
n-Nitrosodiphenylamine	ND	1,600	
4-Bromophenyl-phenylether	ND	1,600	
Hexachlorobenzene	ND	1,600	
Pentachlorophenol	ND	4,100	
Phenanthrene	330 J	1,600	
Anthracene	ND	1,600	
Di-n-butylphthalate	ND	1,600	
Carbazole	ND	1,600	
Fluoranthene	ND	1,600	
Pyrene	ND	1,600	
Butylbenzylphthalate	ND	1,600	
Benzo(a)anthracene	ND	1,600	
Chrysene	ND	1,600	
3,3'-Dichlorobenzidine	ND	1,600	
bis(2-Ethylhexyl)phthalate	ND	1,600	
Di-n-octylphthalate	ND	1,600	
Benzo(b)fluoranthene	ND	1,600	
Benzo(k)fluoranthene	ND	1,600	
Benzo(a)pyrene	ND	1,600	
Indeno(1,2,3-cd)pyrene	ND	1,600	
Dibenz(a,h)anthracene	ND	1,600	
Benzo(g,h,i)perylene	ND	1,600	
•		QC Batch. S	0723-B1
Surrogate Recovery:	,		
2-Fluorophenol	27%		
Phenol-d5	54%		
2-Chlorophenol-d4	38%		
2,4,6-Tribromophenol	15% *		
1,2-Dichlorobenzene-d4	81%		
Nitrobenzene-d5	81%		
2-Fluorobiphenyl	88%		
p-Terphenyl-d14	94%		

ND = Not detected

Page 2 of 2 D1138-04

^{*} Out of control limits



Client: Foster Wheeler Environmental Corp.

Client Project: DO#13F (Tank Farm #4)

Lab Project: D1138

Date Samples Received: July 8, 1997

Project Narrative

This data package included the analysis result for six concrete samples that were received from Foster Wheeler Environmental Corp. on July 8, 1997. Analyses were performed per specifications in the Chain of Custody form. For reference, a copy of the Mitkem Sample Log-In form is included for cross-referencing the Client sample ID and Laboratory sample ID.

Due to the alkaline nature of the concrete samples, low acid surrogate recoveries were determined for several samples for the Method 8270 analyses.

All of the analyses were performed according to method specifications.

The enclosed data package has been reviewed and is authorized for release as evidenced by the signature below.

Kin S. Chiu

Laboratory Manager



July 25, 1997

Foster Wheeler Environmental Corp. Attn: Mr. Mark Gouveia P.O. Box 4749 Middletown, RI 02842

RE: Client Project #DO# 13F, Tank Farm #4
Lab Project #D1138

Dear Mr. Gouveia:

Enclosed is the Data Report of the required analyses for the samples associated with the Project. If you have any questions regarding the Report, please call me.

We appreciate your business.

Sincerely,

Edward A. Lawler

Laboratory Operations Manager

Kin Chin for EAL



Analysis Report: Total Petroleum Hydrocarbons

Client: Foster Wheeler Environmental Corp.

Analysis: Method 418.1

Matrix: Soil

Concentration in: mg/kg, dry weight basis

<u>Lab ID</u>	Client <u>ID</u>	Result	Reporting <u>Limit</u>	% Solid	Analysis Date
ID1138-01 ID1138-02 ID1138-03 ID1138-04 ID1138-05 ID1138-06	TK45W3 TK45C1 TK45F1 TK45W2 TK45W1 TK45W4	1,200 1,300 690 760 1,400 1,300	200 1,100 200 190 210 180	95 95 93 95 95 95	7/24/97 7/24/97 7/24/97 7/24/97 7/24/97

QA/QC Method Blank 10722-B1	ND	22	7/24/97
Lab control Spike (% Recovery) 10722-LCS1	108%	ND	7/24/97



Analysis Report: Volatile Organic Compounds

Client Foster Wheeler Environmental Corp.

Client ID: TK45W3 Lab ID: D1138-01

Analysis: Method 8260

Analysis Date: 7/22/97 Matrix: Soil, 98% solids

Concentration in: ug/kg, dry weight basis

Dilution: 1.04

Analyte	<u>Results</u>	Reporting <u>Limits</u>
Dichlorodifluoromethane	ND .	5
Chloromethane	ND	5
Vinyl chloride	ND	5
Bromomethane	ND	5
Chloroethane	ND	5
Trichlorofluoromethane	ND	5
1,1-Dichloroethene	ND	5
Carbon disulfide	ND	5
Iodomethane	ND	5
Acetone	17	5
Methylene chloride	ND	5
trans-1,2-Dichloroethene	ND	5
1,1-Dichloroethane	ND	5
Vinyl acetate	ND	5
2,2-Dichloropropane	ND	5
cis-1,2-Dichloroethene	ND	5
Methyl ethyl ketone	ND	5
Bromochloromethane	ND	5
Chloroform	ND	5
1,1,1-Trichloroethane	ND	5
Carbon tetrachloride .	ND	5
1,1-Dichloropropene	ND	5
Benzene	ND	5
1,2-Dichloroethane	ND	5
Trichloroethene	ND	5
1,2-Dichloropropane	ND	5
Dibromomethane	ND	5
Bromodichloromethane	ND	5
2-Chloroethyl vinyl ether	ND	5
cis-1,3-Dichloropropene	ND	5
4-Methyl-2-pentanone	ND	5
Toluene	25 D	5
trans-1,3-Dichloropropene	ND	5
1,1,2-Trichloroethane	ND	5
Tetrachloroethene	ND	5
1,3-Dichloropropane	ND	5



Client ID: TK45W3

Lab ID: D1138-01

		Reporting
<u>Analyte</u>	<u>Results</u>	<u>Limits</u>
2-Hexanone	ND	5
Dibromochloromethane	ND	5
1,2-Dibromoethane (EDB)	ND	5
Chlorobenzene	ND	5 5
1,1,1,2-Tetrachloroethane	ND	
Ethylbenzene	25 D	5
Xylenes, total	34	5
Styrene	ND	5
Bromoform	ND	5
Isopropylbenzene	13 D	5
Bromobenzene	ND	5
1,1,2,2-Tetrachloroethane	ND	5
1,2,3-Trichloroproparte	ND	5
n-Propylbenzene	_ 10	5
2-Chlorotoluene	ND	5
4-Chlorotoluene	ND	5
1,3,5-Trimethylbenzene	30	5
tert-Butylbenzene	ND	5
1,2,4-Trimethylbenzene	110	5
sec-Butylbenzene	14 D	5
1,3-Dichlorobenzene	ND	5
4-Isopropyltoluene	9	5
1,4-Dichlorobenzene	ND	5
1,2-Dichlorobenzene	ND	5
n-Butylbenzene	ND	5
1,2-Dibromo-3-chloropropane	ND	5
1,2,4-Trichlorobenzene	ND	5
Hexachlorobutadiene	ND	5
1,2,3-Trichlorobenzene	ND	5
MTBE	ND	5
Naphthalene	410 D	5

QC Batch: V1B0722A

Surrogate Recovery:	
1,2-Dichloroethane-d4	113%
Toluene-d8	105%
Bromofluorobenzene	90%



Analysis Report: TCLP Metals

Client: Foster Wheeler Environmental Corp.

Client ID: TK45W3 Lab ID: D1138-01

Analysis Method: 7470A (Mercury) 6010A (Others)

Matrix: TCLP Leachate Concentration in: mg/L Analysis Date: 7/24/97

		Reporting
Analyte	<u>Results</u>	<u>Limits</u>
Arsenic	ND	0.01
Banum	0.34	0.01
Cadmium	ND	0.002
Chromium	ND	0.01
Lead	0.005	0.01
Mercury	ND	0,002
Selenium	0.03	0.02
Silver	D	0.02

QC Batch: MT0722B1



Analysis Report: Semivolatile Organic Compounds

Client: Foster Wheeler Environmental Corp.

Client ID: TK 45 W3 Lab ID: D1138-01

Analysis: Method 8270

Analysis Date: 7/24/97

Matrix: Concrete, 95% solids

Concentration in: ug/kg, dry weight basis

Dilution: 5

		Reporting
<u>Analyte</u>	<u>Results</u>	Limits
5. .	4.5	
Phenol	ND	1,600
bis(2-Chloroethyl)ether	ND	1,600
2-Chlorophenol	ND	1,600
1,3-Dichlorobenzene	ND	1,600
1,4-Dichlorobenzene	ND	1,600
1,2-Dichlorobenzene	ND	1,600
2-Methylphenol	ND	1,600
2,2'-oxybis(1-Chloropropane)	ND	1,600
4-Methylphenol	ND	1,600
n-Nitroso-di-n-propylamine	ND	1,600
Hexachloroethane	ND	1,600
Nitrobenzene	ND	1,600
Isophorone	ND	1,600
2-Nitrophenol	ND	1,600
2,4-Dimethylphenol	ND	1,600
bis(2-Chloroethoxy)methane	ND	1,600
2,4-Dichlorophenol	ND	1,600
1,2,4-Trichlorobenzene	ND	1,600
Naphthalene	410 J	1,600
4-Chloroaniline	ND	1,600
Hexachlorobutadiene	ND	1,600
4-Chloro-3-methylphenol	ND	1,600
2-Methylnaphthalene	1,600	1,600
Hexachlorocyclopentadiene	ND	1,600
2,4,6-Trichlorophenol	ND	1,600
2,4,5-Trichlorophenol	ND	4,000
2-Chloronaphthalene	ND	1,600
2-Nitroaniline	ND	4,000
Dimethylphthalate	ND	1,600
Acenaphthylene	ND	1,600
2,6-Dinitrotoluene	ND	1,600
3-Nitroaniline	ND	4,000
Acenaphthene	ND	1,600
2,4-Dinitrophenol	ND	4,000
4-Nitrophenol	ND	4,000
Dibenzofuran	ND	1,600
2,4-Dinitrotoluene	ND	1,600

Page 1 of 2 D1138-01



Client ID: TK 45 W3

Lab ID: D1138-01

		Reporting	
Analyte	Results	Limits	
Diethylphthalate	ND	1,600	
Fluorene	ND	1,600	
4-Chlorophenyl-phenylether	ND	1,600	
4-Nitroaniline	ND	4,000	
4,6-Dinitro-2-methylphenol	ND	4,000	
n-Nitrosodiphenylamine	ND	1,600	
4-Bromophenyl-phenylether	ND	1,600	
Hexachlorobenzene	ND	1,600	
Pentachlorophenol	ND	4,000	
Phenanthrene	3 20 J	1,600	
Anthracene	ND	1,600	
Di-n-buty/phthalate	ND	1,600	
Carbazole	ND	1,600	
Fluoranthene	ND	1,600	
Pyrene	ND	1,600	
Butylbenzylphthalate	ND	1,600	
Benzo(a)anthracene	· ND	1,600	
Chrysene	ND	1,600	
3,3'-Dichlorobenzidine	ND	1,600	
bis(2-Ethylhexyl)phthalate	ND	1,600	
Di-n-octylphthalate	ND	1,600	
Benzo(b)fluoranthene	ND	1,600	
Benzo(k)fluoranthene	ND	1,600	
Benzo(a)pyrene	ND	1,600	
Indeno(1,2,3-cd)pyrene	ND	1,600	
Dibenz(a,h)anthracene	ND	1,600	
Benzo(g,h,i)perylene	ND	1,600	
•		QC Batch: S072	23-B1
Surrogate Recovery:			
2-Fluorophenol	33%		
Phenol-d5	52%		
2-Chlorophenol-d4	44%		
2,4,6-Tribromophenol	21%		
1,2-Dichlorobenzene-d4	71%		
Nitrobenzene-d5	65%		

76%

88%

ND = Not detected

2-Fluorobiphenyl

p-Terphenyl-d14

Page 2 of 2 D1138-01



Client: Foster Wheeler Environmental Corp.

Client Project: DO#13F (Tank Farm #4)

Lab Project: D1138

Date Samples Received: July 8, 1997

Project Narrative

This data package included the analysis result for six concrete samples that were received from Foster Wheeler Environmental Corp. on July 8, 1997. Analyses were performed per specifications in the Chain of Custody form. For reference, a copy of the Mitkem Sample Log-In form is included for cross-referencing the Client sample ID and Laboratory sample ID.

Due to the alkaline nature of the concrete samples, low acid surrogate recoveries were determined for several samples for the Method 8270 analyses.

All of the analyses were performed according to method specifications.

The enclosed data package has been reviewed and is authorized for release as evidenced by the signature below.

Kin S. Chiu

Laboratory Manager



July 25, 1997

Foster Wheeler Environmental Corp. Attn: Mr. Mark Gouveia P.O. Box 4749 Middletown, RI 02842

RE: Client Project #DO# 13F, Tank Farm #4
Lab Project #D1138

Dear Mr. Gouveia:

Enclosed is the Data Report of the required analyses for the samples associated with the Project. If you have any questions regarding the Report, please call me.

We appreciate your business.

Sincerely,

Edward A. Lawler

Laboratory Operations Manager

Kin Chin for EAL



Analysis Report: Total Petroleum Hydrocarbons

Client: Foster Wheeler Environmental Corp.

Analysis: Method 418.1

Matrix: Soil

Concentration in: mg/kg, dry weight basis

Lab ID	Client ID	Result	Reporting <u>Limit</u>	% Solid	Analysis Date
Lab ID ID1138-01 ID1138-02 ID1138-03 ID1138-04 ID1138-05 ID1138-06	TK45W3 TK45C1 TK45F1 TK45W2 TK45W1 TK45W4	1,200 1,300 690 760 1,400 1,300	200 1,100 200 190 210	95 95 93 95 95 95	7/24/97 7/24/97 7/24/97 7/24/97 7/24/97 7/24/97

QA/QC Method Blank 10722-B1	ND	22	7 <i>/</i> 24/97
Lab control Spike (% Recovery) 10722-LCS1	108%	ND	7/24/ 97



Analysis Report: Volatile Organic Compounds

Client: Foster Wheeler Environmental Corp

Client ID: TK45W4 Lab ID: D1138-06

Analysis: Method 8260

Analysis Date: 7/22/97 Matrix: Soil, 95% solids

Concentration in: ug/kg, dry weight basis

Dilution: 1.04

Analyte	Results	Reporting <u>Limits</u>
		Simo
Dichlorodifluoromethane	ND	5
Chloromethane	ND	5
Vinyl chloride	ND	5
Bromomethane	ND	5
Chloroethane Chloroethane	ND	5
Trichlorofluoromethane	ND	5
1,1-Dichloroethene	ND	5
Carbon disulfide	ND	5
Iodomethane	ND	5
Acetone	17	5
Methylene chloride	ND	5
trans-1,2-Dichloroethene	ND	5
1,1-Dichloroethane	ND	5
Vinyl acetate	ND	5
2,2-Dichloropropane	ND	5
cis-1,2-Dichloroethene	ND	5
Methyl ethyl ketone	ND	5
Bromochloromethane	ND	5
Chloroform	ND	5
1,1,1-Trichloroethane	ND	5
Carbon tetrachlonde	ND	5
1,1-Dichloropropene	ND	5
Benzene	ND	5
1,2-Dichloroethane	ND	5
Trichloroethene	ND	5
1,2-Dichloropropane	ND	5
Dibromomethane	ND	5
Bromodichloromethane	ND	5
2-Chloroethyl vinyl ether	ND	5
cis-1,3-Dichloropropene	ND	5
4-Methyl-2-pentanone	ND	5
Toluene	7	5
trans-1,3-Dichloropropene	ND	5
1,1,2-Trichloroethane	ND	5
Tetrachloroethene	ND	5
1,3-Dichloropropane	ND	5

Page 1 of 2 D1138-06



Client ID: TK45W4 Lab ID: D1138-06

		Reporting
<u>Analyte</u>	Results	<u>Limits</u>
2-Hexanone	ND	5
Dibromochloromethane	ND	5
1,2-Dibromoethane (EDB)	ND	5
Chlorobenzene	ND	5
1,1,1,2-Tetrachloroethane	ND	5
Ethylbenzene	12	5
Xylenes, total	71	5
Styrene	ND	5
Bromoform	ND	5
isopropyibenzene	14	5
Bromobenzene	ND	5
1,1,2,2-Tetrachloroethane	ND	5
1,2,3-Trichloropropane	ND	5
n-Propylbenzene	25	5
2-Chlorotoluene	ND	5
4-Chlorotoluene	ND	5
1,3,5-Trimethylbenzene	68	5
tert-Butylbenzene	ND	5
1,2,4-Trimethylbenzene	270 D	5
sec-Butylbenzene	14	5
1,3-Dichlorobenzene	ND	5
4-Isopropyltoluene	17	5
1,4-Dichlorobenzene	ND	5
1,2-Dichlorobenzene	ND	5
n-Butylbenzene	ND	5
1,2-Dibromo-3-chloropropane	ND	5
1,2,4-Trichlorobenzene	ND	5
Hexachlorobutadiene	ND	5
1,2,3-Trichlorobenzene	ND	5
MTBE	ND	5
Naphthalene	240 D	5

QC Batch. V1B0722A

Surrogate Recovery:	
1,2-Dichloroethane-d4	118%
Toluene-d8	98%
Bromofluorobenzene	86%



Analysis Report: Volatile Organic Compounds

Client: Foster Wheeler Environmental Corp.

Client ID:

Lab ID: Method Blank, V1B0722A

Analysis: Method 8260

Analysis Date: 7/22/97

Matrix: Soil

Concentration in: ug/kg, dry weight basis

Dilution: 1.04

<u>Analyte</u>	Results	Reporting <u>Limits</u>
Dichlorodifluoromethane	ND	5
Chloromethane	ND	5
Vinyl chloride	ND	5
Bromomethane	ND	5
Chloroethane	ND	5
Trichlorofluoromethane	ND	5
1,1-Dichloroethene	ND	5
Carbon disulfide	ND	5
lodomethane	ND	5
Acetone	ND	5
Methylene chloride	ND	5
trans-1,2-Dichloroethene	ND	5
1,1-Dichloroethane	ND	5
Vinyl acetate	ND	5
2,2-Dichloropropane	ND	5
cis-1,2-Dichloroethene	ND	5
Methyl ethyl ketone	ND	5
Bromochloromethane	ND	5
Chloroform	ND	5
1,1,1-Trichloroethane	ND	5
Carbon tetrachioride .	ND	5
1,1-Dichloropropene	ND	5
Benzene	ND	5
1,2-Dichloroethane	ND	5
Trichloroethene	ND	5
1,2-Dichloropropane	ND	5
Dibromomethane	ND	5
Bromodichloromethane	ND	5
2-Chloroethyl vinyl ether	ND	5
cis-1,3-Dichloropropene	ND	5
4-Methyl-2-pentanone	ND	5
Toluene	ND	5
trans-1,3-Dichloropropene	ND	5
1,1,2-Tnchloroethane	ND	5
Tetrachloroethene	ND	5
1,3-Dichloropropane	ND	5



Client ID:

Lab ID: Method Blank, V1B0722A

	_	Reporting
Analyte	Results	<u>Limits</u>
2-Hexanone	ND	5
Dibromochloromethane	ND	5
1,2-Dibromoethane (EDB)	ND	5
Chlorobenzene	ND	5
1,1,1,2-Tetrachloroethane	ND	5
Ethylbenzene	ND	5
Xylenes, total	ND	5
Styrene	- ND	5
Bromoform	ND	. 5
Isopropylbenzene	ND	5
Bromobenzene	ND	5
1,1,2,2-Tetrachloroethane	ND	5
1,2,3-Trichloropropane	ND	5
n-Propylbenzene	ND	5
2-Chlorotoluene	ND	5
4-Chlorotoluene	ND	5
1,3,5-Trimethylbenzene	ND	5
tert-Butylbenzene	ND	5
1,2,4-Trimethylbenzene	ND	5
sec-Butylbenzene	ND	5
1,3-Dichlorobenzene	ND	5
4-Isopropyltoluene	ND	5
1,4-Dichlorobenzene	ND	5
1,2-Dichlorobenzene	ND	5
n-Butylbenzene	ND	5
1,2-Dibromo-3-chloropropane	ND	5
1,2,4-Tnchlorobenzene	ND	5
Hexachlorobutadiene	ND	5
1,2,3-Trichlorobenzene	ND	5
MTBE	ND	5
Naphthalene	ND	5

QC Batch: V1B0722A

Surrogate Recovery:	
1,2-Dichloroethane-d4	110%
Toluene-d8	111%
Bromofluombenzene	106%



Analysis Report: TCLP Metals

Client: Foster Wheeler Environmental Corp.

Client ID: TK45W4

Lab ID: D1138-06

Analysis Method: 7470A (Mercury) 6010A (Others)

Ιİ

Matrix: TCLP Leachate Concentration in: mg/L

Analysis Date: 7/24/97

		Reporting
<u>Analyte</u>	<u>Results</u>	<u>Limits</u>
Arsenic	ND	0.01
Barium	0.44	0.01
Cadmium	ND	0.002
Chromium	ND	0.01
Lead	ND	0.01
Mercury	ND	0.002
Selenium	0.04	0.02
Silver	ND	0.02

QC Batch: MT0722B1



Analysis Report: TCLP Metals

Client: Foster Wheeler Environmental Corp.

Client ID:

Lab ID: TCLP Blank

Analysis Method: 7470A (Mercury) 6010A (Others)

Matrix: TCLP Leachate Concentration in: mg/L Analysis Date: 7/24/97

		Reporting
Analyte	Results	<u>Limits</u>
Arsenic	ND	• 0.01
Barium	ND	0.01
Cadmium	ND	0.002
Chromium	ND	0.01
Lead	ND	0.01
Mercury	ND	0.002
Selenium	ND	0.02
Silver	ND	0.02

QC Batch: MT0722B1



Analysis Report: Semivolatile Organic Compounds

Client: Foster Wheeler Environmental Corp.

Client ID: TK 45 W4 Lab ID: D1138-06 Analysis: Method 8270 Analysis Date: 7/28/97

Matrix: Concrete, 95% solids

Concentration in: ug/kg, dry weight basis

Dilution. 5

		Reporting
Analyte	Results	Limits
Phenol	ND	1,200
bis(2-Chloroethyl)ether	ND	1,200
2-Chiorophenol	ND	1,200
1,3-Dichlorobenzene	ND	1,200
1,4-Dichlorobenzene	ND	1,200
1,2-Dichlorobenzene	ND	1,200
2-Methylphenol	ND	1,200
2,2'-oxybis(1-Chloropropane)	ND	1,200
4-Methylphenol	ND -	1,200
n-Nitroso-di-n-propylamine	ND	1,200
Hexachloroethane	ND	1,200
Nitrobenzene	ND	1,200
Isophorone	ND	1,200
2-Nitrophenol	ND	1,200
2,4-Dimethylphenol	ND	1,200
bis(2-Chloroethoxy)methane	ND	1,200
2,4-Dichlorophenol	ND	1,200
1,2,4-Trichlorobenzene	ND	1,200
Naphthalene	320 J	1,200
4-Chloroaniline	ND	1,200
Hexachlorobutadiene	ND	1,200
4-Chloro-3-methylphenol	ND	1,200
2-Methylnaphthalene	1,100 J	1,200
Hexachlorocyclopentadiene	ND	1,200
2,4,6-Trichlorophenol	ND	1,200
2,4,5-Trichlorophenol	ND	3,100
2-Chloronaphthalene	ND	1,200
2-Nitroaniline	ND	3,100
Dimethylphthalate	ND	1,200
Acenaphthylene	ND	1,200
2,6-Dinitrotoluene	ND	1,200
3-Nitroaniline	ND	3,100
Acenaphthene	ND	1,200
2,4-Dinitrophenol	ND	3,100
4-Nitrophenol	ND	3,100
Dibenzofuran	ND ,	1,200
2,4-Dinitrotoluene	ND	1,200



Client ID. TK 45 W4

ND = Not detected

Lab ID: D1138-06

		Reporting	
<u>Analyte</u>	Results	Limits	
Diethylphthalate	ND	1,200	
Fluorene	ND	1,200	
4-Chlorophenyl-phenylether	ND	1,200	
4-Nitroaniline	ND	3,100	
4,6-Dinitro-2-methylphenol	ND	3,100	
n-Nitrosodiphenylamine	ND	1,200	
4-Bromophenyl-phenylether	ND	1,200	
Hexachlorobenzene	ND	1,200	
P ntachlorophenol	ND	3,100	
Phenanthrene	350 J	1,200	
Anthracene	ND	1,200	
Di-n-butylphthalate	ND	1,200	
Carbazole	ND	1,200	
Fluoranthene	ND	1,200	
Pyrene	ND	1,200	
Butylbenzylphthalate	ND	1,200	
Benzo(a)anthracene	ND	1,200	
Chrysene	ND	1,200	
3,3'-Dichlorobenzidine	ND	1,200	
bis(2-Ethylhexyl)phthalate	ND	1,200	
Di-n-octylphthalate	ND	1,200	
Benzo(b)fluoranthene	ND	1,200	
Benzo(k)fluoranthene	ND	1,200	
Benzo(a)pyrene	ND	1,200	
Indeno(1,2,3-cd)pyrene	ND	1,200	
Dibenz(a,h)anthracene	ND	1,200	
Benzo(g,h,i)perylene	ND	1,200	
•		QC Batch: S0723-	-B1
Surrogate Recovery:			
2-Fluorophenol	37%		
Phenol-d5	58%		
2-Chlorophenol-d4	49%		
2,4,6-Tribromophenol	26%		
1,2-Dichlorobenzene-d4	82%		
Nitrobenzene-d5	83%		
2-Fluorobiphenyl	92%		
p-Terphenyl-d14	100%		

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Analysis Report: Semivolatile Organic Compounds

Client: Foster Wheeler Environmental Corp.

Client ID

Lab ID: Method Blank, S0723-B1

Analysis: Method 8270

Analysis Date: 7/28/97

Matrix: Solid

Concentration in: ug/kg

Dilution: 1

		Reporting
Anal <u>yte</u>	Results	<u>Limits</u>
	 _	
Phenol	ND	330
bis(2-Chloroethyl)ether	ND	330
2-Chlorophenol	ND	330
1,3-Dichlorobenzene	ND	330
1,4-Dichlorobenzene	ND .	330
1,2-Dichlorobenzene	ND	330
2-Methylphenol	ND	330
2,2'-oxybis(1-Chloropropane)	ND `	330
4-Methylphenol	ND	330
n-Nitroso-di-n-propylamine	ND	330
Hexachloroethane	ND	330
Nitrobenzene	ND	330
!sophorone	ND	330
2-Nitrophenol	ND	330
2,4-Dimethylphenol	ND	330
bis(2-Chloroethoxy)methane	ND	330
2,4-Dichlorophenol	ND	330
1,2,4-Trichlorobenzene	ND	330
Naphthalene	ND	330
4-Chloroaniline	ND	330
Hexachlorobutadiene	ND	3 30
4-Chloro-3-methylphenol	ND	3 30
2-Methylnaphthalene	ND	330
Hexachlorocyclopentadiene	ND	330
2,4,6-Trichlorophenol	ND	3 30
2,4,5-Trichtorophenol	ND	830
2-Chloronaphthalene	ND	330
2-Nitroaniline	ND	830
Dimethylphthalate	ND	330
Acenaphthylene	NO	330
2,6-Dinitrotoluene	ND	330
3-Nitroaniline	ND	830
Acenaphthene	DM	330
2,4-Dinitrophenol	ND	830
4-Nitrophenol	ND	830
Dibenzofuran	ND	330
2,4-Dinitrotoluene	ND	330

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Client ID:

1

Lab ID: Method Blank, S0723-B1

		Reporting	
Analyte	Results	Limits	
Diethylphthalate	ND	330	
Fluorene	ND	330	
4-Chlorophenyl-phenylether	ND	330	
4-Nitroaniline	ND	830	
4.6-Dinitro-2-methylphenol	ND	830	
n-Nitrosodiphenylamine	ND	33 0	
4-Bromophenyl-phenylether	ND	330	
Hexachlorobenzene	ND	330	
Pentachlorophenol	ND	830	
Phenanthrene	ND	330	
Anthracene	ND	330	
Di-n-butylphthalate	ND	33 0	
Carbazole	ND	330	
Fluoranthene	ND	330	
Pyrene	ND	330	
Butylbenzylphthalate	ND	33 0	
Benzo(a)anthracene	ND	330	
Chrysene	ND	330	
3,3'-Dichlorobenzidine	ND	330	
bis(2-Ethylhexyl)phthalate	ND	330	
Di-n-octylphthalate	ND	330	
Benzo(b)fluoranthene	ND	330	
Benzo(k)fluoranthene	ND	3 30	
Benzo(a)pyrene	ND	33 0	
Indeno(1,2,3-cd)pyrene	ND	330	
Dibenz(a,h)anthracene	ND	330	
Benzo(g,h,i)perylene	ND	330	
Delizo(g.ii,t)perylene		QC Batch: S0723	2.01
Companie Passussus		QC Balcii. 30/2.	ا تا در
Surrogate Recovery	64%		
2-Fluorophenol	72%		
Phenol-d5	76%		
2-Chlorophenol-d4	80%		
2,4,6-Tribromophenol	76%		
1,2-Dichlorobenzene-d4	76%		
Nitrobenzene-d5	76%		
2-Fluorobiphenyl	88%		
p-Terphenyl-d14	UU /8		



Analysis Report: Semivolatile Organic Compounds Blank Spike Summary

Client: Foster Wheeler Environmental Corp.

Lab ID for Blank Spike: S0723-L1

Analysis: Method 8270

Matrix: Solid

Analysis Date for Blank Spike: 7/24/97

<u>Analyte</u>	% Recovery
Phenol	64
2-Chlorophenol	64
1,4-Dichlorobenzene	59
n-Nitroso-di-n-propylamine	82
1,2,4-Trichlorobenzene	65
4-Chloro-3-methylphenol	80
Acenaphthene	71
4-Nitrophenol	80
2,4-Dinitrotoluene	82
Pentachlorophenol	60
Pyrene .	82

QC Batch: S0723-B1

TANK NO. 45 C1	
17.11.11.11.10.10.1	
SUBSTANCE	FIELD ANALYTICAL
- COESTANCE	DETECTIONS
	(mg/kg except as
	otherwise noted)
VOLATILE ORGANICS	- Giller Wide Holedy
Acetone	9(PPB)
Benzene	3(1.2)
Bromodichloromethane	
Bromoform	
Bromomethane	
Carbon tetrachloride	
Chlorobenzene	
Chloroform	
Dibromochloromethane	
Dibromochloropropane (DBCP)	
Dichloroethane (1,1-)	
Dichloroethane (1,1-)	
Dichchloroethylene (1,1-)	
Dichloroethene (1,1-)	
Dichloroethylene (cis-1,2,-)	
Dichloroethene (cis-1,2-)	
Dichloroethylene (trans-1,2-)	
Dichloroethene (trans-1,2-)	
Dichloropropane (1,2)	O(DDD)
Ethyl benzene	9(PPB)
Ethylene dibromode (EDB)	40(DDB)
Isopropyl benzene	10(PPB)
Methyl ethyl ketone	
Methyl isobutyl ketone	
Methyl-tert-butyl-ether	
Methylene chloride	
Styrene	
Tetrachloroethane,1,1,1,2	
Tetrachloroethane,1,1,2,2	
Tetrachloroethylene	
Toluene	
Trichloroethane, 1, 1, 1-	
Trichloroethane,1,1,2-	
Trichloroethylene	
Vinyl chloride	
Xylenes (AAA)	40/808)
Xylenes (total)	49(PPB)
SEMIVOLATILES	0.00000
Acenaphthene	210(PPB)
Acenaphthylene	
Anthracene	
Benzo(a)anthracene	

Benzo(a)pyrene	Γ	1
Benzo(b)fluoranthene		<u> </u>
Benzo(g,h,i)perylene		
Benzo(k)fluoranthene	<u> </u>	
Biphenyl,1,1-		
Bis(2-ethylhexyl)phthalate		1,500(PPB)
Bis(2-chloroethyl)ether		1,500(11 8)
Bis(2-chloroisipropyl)ether		
Chloroaniline, 4- (p-)		
Chlorophenol, 2-		
Chrysene		
Dibenzo(a,h)anthracene		
Dichlorobenzene (all isomers)		
Dichlorobenzene, 1,2- (o-DCB)		
Dichlorobenzene, 1,2- (o-DCB)		
Dichlorobenzene, 1,4- (p-DCB)		
Dichlorobenzidine, 3,3-		
Dichlorophenol, 2,4-		
Diethlhexyl phthalate		
Diethyl phthalate		
Dimethyl phenol, 2,4-		
Dimethyl phthalate		
Dinitrophenol, 2,4-		
Dinitrotoluene, 2,4-		ļ
Fluoranthene		0.00,000
Fluorene		240(PPB)
Hexachlorobenzene		<u> </u>
Hexachlorobutadiene		
Hexachloroethane		ļ
Ideno(1,2,3-cd)pyrene		
Methyl naphthalene, 2-		2,900(PPB)
Naphthalene		750(PPB)
Pentachlorophenol		
Phenanthrene		780(PPB)
Phenol		
Pyrene		240(PPB)
Trichlorobenzene, 1,2,4-		
Trichlorophenol, 2,4,5-		
Trichlorophenol, 2,4,6-		
PESTCIDES/PCBs		
Chlorodane		
Dieldrin		
Polychlorinated biphenyls (PCBs)		
INORGANICS		ļ
Antimony		ļ
Arsenic		
Barium		0 26
Beryllium		<u> </u>
Cadmium	<u>i </u>	L

Sheet1

Chromium	
Chromium III (Trivalent)	
Chromium VI _I (Hexavalent)	
Copper	
Cyanide	
Lead	
Manganese	
Mercury	
Nickel	
Selenium	0.04
Silver	
Thallium	
Vanadium	
Zinc	
<u>TPH</u>	1,300

TANK NO. 45 F1	
SUBSTANCE	FIELD ANALYTICAL
COSTANCE	DETECTIONS
	(mg/kg except as
	otherwise noted)
VOLATILE ORGANICS	
Acetone	40(PPB)
Benzene	
Bromodichloromethane	
Bromoform	
Bromomethane	
Carbon tetrachloride	
Chlorobenzene	
Chloroform	
Dibromochloromethane	
Dibromochloropropane (DBCP)	
Dichloroethane (1,1-)	
Dichloroethane (1,2-)	
Dichchloroethylene (1,1-)	
Dichloroethene (1,1-)	
Dichloroethylene (cis-1,2,-)	
Dichloroethene (cis-1,2-)	
Dichloroethylene (trans-1,2-)	
Dichloroethene (trans-1,2-)	
Dichloropropane (1,2)	
Ethyl benzene	
Ethylene dibromode (EDB)	
Isopropyl benzene	
Methyl ethyl ketone	7(PPB)
Methyl isobutyl ketone	
Methyl-tert-butyl-ether	
Methylene chloride	
Styrene	
Tetrachloroethane,1,1,1,2	
Tetrachloroethane, 1, 1, 2, 2	
Tetrachloroethylene	
Toluene	
Trichloroethane,1,1,1-	
Trichloroethane, 1, 1, 2-	
Trichloroethylene	
Vinyl chloride	
Xylenes	
Xylenes (total)	
SEMIVOLATILES	
Acenaphthene	
Acenaphthylene	
Anthracene	
Benzo(a)anthracene	

Benzo(a)pyréne		
Benzo(b)fluoranthene		
Benzo(g,h,i)perylene	· · · · · · · · · · · · · · · · · · ·	
Benzo(k)fluoranthene		
Biphenyl,1,1-		
Bis(2-ethylhexyl)phthalate		430(PPB)
Bis(2-chloroethyl)ether		100(1.5)
Bis(2-chloroisipropyl)ether		
Chloroaniline, 4- (p-)		
Chlorophenol, 2-		
Chrysene		
Dibenzo(a,h)anthracene		
Dichlorobenzene (all isomers)		
Dichlorobenzene, 1,2- (o-DCB)		
Dichlorobenzene, 1,2- (o-DCB)		
Dichlorobenzene, 1,4- (p-DCB)		
Dichlorobenzidine, 3,3-		
Dichlorophenol, 2,4-		
Diethlhexyl phthalate		
Diethinexyl phthalate		
Dimethyl phenol, 2,4-		
Dimethyl phenol, 2,4-		
The state of the s		
Dinitrophenol, 2,4-		
Dinitrotoluene, 2,4- Fluoranthene		
Fluorene		
Hexachlorobenzene Hexachlorobutadiene		
Hexachloroethane		
Ideno(1,2,3-cd)pyrene	,	93(PPB)
Methyl naphthalene, 2-		25(PPB)
Naphthalene Pentachlorophenol		23(PFB)
Phenanthrene		
Phenol		
Pyrene 124		<u> </u>
Trichlorobenzene, 1,2,4-		
Trichlorophenol, 2,4,5-		
Trichlorophenol, 2,4,6-		
PESTCIDES/PCBs Chlorodane		
Dieldrin		
Polychlorinated biphenyls (PCBs)		
INORGANICS		
Antimony		
Arsenic		
Barium		0 18
Beryllium		
Cadmium		<u> </u>

Sheet1

Chromium		
Chromium III (Trivalent)		
Chromium VI (Hexavalent)		1
Copper		
Cyanide		
Lead	-	
Manganese		
Mercury		
Nickel		
Selenium		0.04
Silver		
Thallium		
Vanadium		
Zinc		
TPH		690

TANK NO. 45 W1	
SUBSTANCE	FIELD ANALYTICAL
	DETECTIONS
	(mg/kg except as
	otherwise noted)
VOLATILE ORGANICS	
Acetone	17(PPB)
Benzene	
Bromodichloromethane	
Bromoform	
Bromomethane	
Carbon tetrachloride	
Chlorobenzene	
Chloroform	
Dibromochloromethane	
Dibromochloropropane (DBCP)	
Dichloroethane (1,1-)	· -
Dichloroethane (1,2-)	
Dichchloroethylene (1,1-)	
Dichloroethene (1,1-)	
Dichloroethylene (cis-1,2,-)	
Dichloroethene (cis-1,2-)	***************************************
Dichloroethylene (trans-1,2-)	
Dichloroethene (trans-1,2-)	
Dichloropropane (1,2)	
Ethyl benzene	80(PPB)
Ethylene dibromode (EDB)	
Isopropyl benzene	57(PPB)
Methyl ethyl ketone	8(PPB)
Methyl isobutyl ketone	
Methyl-tert-butyl-ether	
Methylene chloride	
Styrene	
Tetrachloroethane, 1, 1, 1, 2	
Tetrachloroethane, 1, 1, 2, 2	
Tetrachloroethylene	
Toluene	70(PPB)
Trichloroethane, 1, 1, 1-	
Trichloroethane,1,1,2-	
Trichlorc-ethylene	
Vinyl chloride	
Xylenes	
Xylenes (total)	410(PPB)
SEMIVOLATILES	
Acenaphthene	
Acenaphthylene	
Anthracene	
Benzo(a)anthracene	
——————————————————————————————————————	

Benzo(a)pyrene			
Benzo(b)fluoranthene			
Benzo(g,h,i)perylene			
Benzo(k)fluoranthene			
Biphenyl,1,1-			
Bis(2-ethylhexyl)phthalate			
Bis(2-chloroethyl)ether			
Bis(2-chloroisipropyl)ether			
Chloroaniline, 4- (p-)			
Chlorophenol, 2-			
Chrysene			
Dibenzo(a,h)anthracene			
Dichlorobenzene (all isomers)	٦		
Dichlorobenzene, 1,2- (o-DCB)			
Dichlorobenzene, 1,2- (o-DCB)			
Dichlorobenzene, 1,4- (p-DCB)			
Dichlorobenzidine, 3,3-			
Dichlorophenol, 2,4-			
Diethlhexyl phthalate			
Diethyl phthalate			
Dimethyl phenol, 2,4-			
Dimethyl phthalate			
Dinitrophenol, 2,4-			
Dinitrotoluene, 2,4-			
Fluoranthene			
Fluorene			
Hexachlorobenzene			
Hexachlorobutadiene			
Hexachioroethane			
Ideno(1,2,3-cd)pyrene			(
Methyl naphthalene, 2-			1,200(PPB)
Naphthalene			230(PPB)
Pentachlorophenol			
Phenanthrene			370(PPB)
Phenol .			
Pyrene			
Trichlorobenzene, 1,2,4-			
Trichlorophenol, 2,4,5-			
Trichlorophenol, 2,4,6-			
PESTCIDES/PCBs			
Chlorodane		•	
Dieldrin			
Polychlorinated biphenyls (PCBs)			
INORGANICS			
Antimony			·
Arsenic			
Barium	-		0.25
Beryllium			· · · · · · · · · · · · · · · · · · ·
Cadmium	-		
		 	

Chromium	
Chromium III (Trivalent)	
Chromium VI (Hexavalent)	
Copper	
Cyanide	
Lead	
Manganese	
Mercury	0.03
Nickel	
Selenium	0.04
Silver	
Thallium	
Vanadium	
Zinc	
TPH	1,400

TANK NO. 45 W2 SUBSTANCE DETECTION	
DETECTION	
DETECTION	FICAL
Otherwise not YOLATILE ORGANICS Section 13(PPB)	VS
Otherwise not YOLATILE ORGANICS Section 13(PPB)	
Acetone Benzene Bromodichloromethane Bromoform Bromomethane Carbon tetrachloride Chloroform Dibromochloromethane Dibromochloropane (DBCP) Dichloroethane (1,1-) Dichloroethane (1,1-) Dichloroethylene (1,1-) Dichloroethylene (1,1-) Dichloroethylene (cis-1,2-) Dichloroethylene (trans-1,2-) Dichloroethylene (trans-1,2-) Dichloropane (1,2) Ethyl benzene Ethylene dibromode (EDB) Isoproyi benzene Methyl ethyl ketone Methyl isobutyl ketone Methyl-tert-butyl-ether Methylene chloride Styrene Tetrachloroethane, 1,1,1,2 Tetrachloroethylene Toluene Toluene Toluene	
Benzene Bromodichloromethane Bromoform Bromomethane Carbon tetrachloride Chlorobenzene Chloroform Dibromochloromethane Dibromochloropropane (DBCP) Dichloroethane (1,1-) Dichloroethane (1,1-) Dichloroethylene (1,1-) Dichloroethylene (1,1-) Dichloroethylene (cis-1,2-) Dichloroethylene (cis-1,2-) Dichloroethylene (trans-1,2-) Dichloroethylene (trans-1,2-) Dichlorophylene (trans-1,1,1,2-) Tetrachloroethane,1,1,1,2- Tetrachloroethane,1,1,1,2- Tetrachloroethylene Toluene	
Benzene Bromodichloromethane Bromoform Bromomethane Carbon tetrachloride Chlorobenzene Chloroform Dibromochloromethane Dibromochloropropane (DBCP) Dichloroethane (1,1-) Dichloroethane (1,1-) Dichloroethylene (1,1-) Dichloroethylene (1,1-) Dichloroethylene (cis-1,2-) Dichloroethylene (cis-1,2-) Dichloroethylene (trans-1,2-) Dichloroethylene (trans-1,2-) Dichlorophylene (trans-1,1,1,2-) Tetrachloroethane,1,1,1,2- Tetrachloroethane,1,1,1,2- Tetrachloroethylene Toluene	
Bromoferm Bromomethane Carbon tetrachloride Chlorobenzene Chloroform Dibromochloromethane Dibromochloropropane (DBCP) Dichloroethane (1,1-) Dichloroethane (1,2-) Dichloroethane (1,1-) Dichloroethylene (1,1-) Dichloroethylene (cis-1,2-) Dichloroethylene (cis-1,2-) Dichloroethylene (cis-1,2-) Dichloroethylene (trans-1,2-) Dichloroethylene (trans-1,2-) Dichloroethylene (trans-1,2-) Dichloropropane (1,2) Ethyl benzene Ethylene dibromode (EDB) Isopropyl benzene Methyl ethyl ketone Methyl ethyl ketone Methyl-tert-butyl-ether Methylene chloride Styrene Tetrachloroethane, 1, 1, 2, 2 Tetrachloroethylene Toluene	
Bromomethane Carbon tetrachloride Chlorobenzene Chloroform Dibromochloromethane Dibromochloropropane (DBCP) Dichloroethane (1,1-) Dichloroethane (1,2-) Dichloroethylene (1,1-) Dichloroethylene (1,1-) Dichloroethylene (cis-1,2-) Dichloroethylene (cis-1,2-) Dichloroethylene (trans-1,2-) Dichloroethene (trans-1,2-) Dichloropropane (1,2) Ethyl benzene Ethylene dibromode (EDB) Isopropyl benzene Methyl ethyl ketone Methyl ethyl ketone Methyl-tert-butyl-ether Methylene chloride Styrene Tetrachloroethylene Toluene Toluene	
Carbon tetrachloride Chlorobenzene Chloroform Dibromochloromethane Dibromochloropropane (DBCP) Dichloroethane (1,1-) Dichloroethane (1,2-) Dichchloroethylene (1,1-) Dichloroethylene (1,1-) Dichloroethylene (1,1-) Dichloroethylene (cis-1,2-) Dichloroethylene (cis-1,2-) Dichloroethylene (trans-1,2-) Dichloroethylene (trans-1,2-) Dichloroethene (trans-1,2-) Dichloropropane (1,2) Ethyl benzene Ethylene dibromode (EDB) Isopropyl benzene Methyl ethyl ketone Methyl sobutyl ketone Methyl-tert-butyl-ether Methylene chloride Styrene Tetrachloroethane, 1, 1, 1, 2 Tetrachloroethylene Toluene	
Chloroform Dibromochloromethane Dibromochloropropane (DBCP) Dichloroethane (1,1-) Dichloroethane (1,2-) Dichloroethylene (1,1-) Dichloroethylene (1,1-) Dichloroethylene (cis-1,2,-) Dichloroethylene (cis-1,2,-) Dichloroethylene (cis-1,2-) Dichloroethylene (trans-1,2-) Dichloroethylene (trans-1,2-) Dichloropropane (1,2) Ethyl benzene Ethylene dibromode (EDB) Isopropyl benzene Methyl ethyl ketone Methyl sobutyl ketone Methyl-tert-butyl-ether Methylene chloride Styrene Tetrachloroethane,1,1,2,2 Tetrachloroethylene Toluene	
Chloroform Dibromochloromethane Dibromochloropropane (DBCP) Dichloroethane (1,1-) Dichloroethylene (1,1-) Dichloroethylene (1,1-) Dichloroethylene (cis-1,2-) Dichloroethylene (cis-1,2-) Dichloroethylene (trans-1,2-) Dichloroethylene (trans-1,2-) Dichloroethene (trans-1,2-) Dichloropropane (1,2) Ethyl benzene Ethylene dibromode (EDB) Isopropyl benzene Methyl ethyl ketone Methyl sobutyl ketone Methyl-tert-butyl-ether Methylene chloride Styrene Tetrachloroethane, 1, 1, 2, 2 Tetrachloroethylene Toluene	***************************************
Dibromochloropropane (DBCP) Dichloroethane (1,1-) Dichloroethylene (1,2-) Dichloroethylene (1,1-) Dichloroethylene (1,1-) Dichloroethylene (cis-1,2,-) Dichloroethylene (cis-1,2,-) Dichloroethylene (trans-1,2-) Dichloroethylene (trans-1,2-) Dichloropropane (1,2) Ethyl benzene Ethylene dibromode (EDB) Isopropyl benzene Methyl ethyl ketone Methyl isobutyl ketone Methyl-tert-butyl-ether Methylene chloride Styrene Tetrachloroethane, 1, 1, 1, 2 Tetrachloroethylene Toluene	
Dibromochloropropane (DBCP) Dichloroethane (1,1-) Dichloroethylene (1,1-) Dichloroethylene (1,1-) Dichloroethylene (cis-1,2-) Dichloroethylene (cis-1,2-) Dichloroethylene (cis-1,2-) Dichloroethylene (trans-1,2-) Dichloroethylene (trans-1,2-) Dichloropropane (1,2) Ethyl benzene Ethylene dibromode (EDB) Isopropyl benzene Methyl ethyl ketone Methyl isobutyl ketone Methyl-tert-butyl-ether Methylene chloride Styrene Tetrachloroethane,1,1,1,2 Tetrachloroethylene Toluene	
Dichloroethane (1,1-) Dichloroethane (1,2-) Dichchloroethylene (1,1-) Dichloroethylene (cis-1,2-) Dichloroethylene (cis-1,2-) Dichloroethylene (cis-1,2-) Dichloroethylene (trans-1,2-) Dichloroethylene (trans-1,2-) Dichloropropane (1,2) Ethyl benzene Ethylene dibromode (EDB) Isopropyl benzene Methyl ethyl ketone Methyl isobutyl ketone Methyl-tert-butyl-ether Methylene chloride Styrene Tetrachloroethane,1,1,1,2 Tetrachloroethylene Toluene	
Dichloroethane (1,1-) Dichloroethane (1,2-) Dichchloroethylene (1,1-) Dichloroethylene (cis-1,2-) Dichloroethylene (cis-1,2-) Dichloroethylene (cis-1,2-) Dichloroethylene (trans-1,2-) Dichloroethylene (trans-1,2-) Dichloropropane (1,2) Ethyl benzene Ethylene dibromode (EDB) Isopropyl benzene Methyl ethyl ketone Methyl isobutyl ketone Methyl-tert-butyl-ether Methylene chloride Styrene Tetrachloroethane,1,1,1,2 Tetrachloroethylene Toluene	
Dichchloroethylene (1,1-) Dichloroethylene (cis-1,2-) Dichloroethylene (cis-1,2-) Dichloroethylene (trans-1,2-) Dichloroethylene (trans-1,2-) Dichloropropane (1,2) Ethyl benzene Ethylene dibromode (EDB) Isopropyl benzene Methyl ethyl ketone Methyl isobutyl ketone Methyl-tert-butyl-ether Methylene chloride Styrene Tetrachloroethane,1,1,1,2 Tetrachloroethylene Toluene	
Dichchloroethylene (1,1-) Dichloroethylene (cis-1,2-) Dichloroethylene (cis-1,2-) Dichloroethylene (trans-1,2-) Dichloroethylene (trans-1,2-) Dichloropropane (1,2) Ethyl benzene Ethylene dibromode (EDB) Isopropyl benzene Methyl ethyl ketone Methyl isobutyl ketone Methyl-tert-butyl-ether Methylene chloride Styrene Tetrachloroethane,1,1,1,2 Tetrachloroethylene Toluene	
Dichloroethene (1,1-) Dichloroethylene (cis-1,2-) Dichloroethylene (cis-1,2-) Dichloroethylene (trans-1,2-) Dichloroethene (trans-1,2-) Dichloropropane (1,2) Ethyl benzene Ethylene dibromode (EDB) Isopropyl benzene Methyl ethyl ketone Methyl isobutyl ketone Methyl-tert-butyl-ether Methylene chloride Styrene Tetrachloroethane,1,1,2,2 Tetrachloroethylene Toluene	
Dichloroethylene (cis-1,2-) Dichloroethylene (trans-1,2-) Dichloroethylene (trans-1,2-) Dichloropropane (1,2) Ethyl benzene Ethylene dibromode (EDB) Isopropyl benzene Methyl ethyl ketone Methyl isobutyl ketone Methyl-tert-butyl-ether Methylene chloride Styrene Tetrachloroethane,1,1,1,2 Tetrachloroethylene Toluene	-
Dichloroethene (cis-1,2-) Dichloroethylene (trans-1,2-) Dichloropropane (1,2) Ethyl benzene Ethylene dibromode (EDB) Isopropyl benzene Methyl ethyl ketone Methyl isobutyl ketone Methyl-tert-butyl-ether Methylene chloride Styrene Tetrachloroethane,1,1,1,2 Tetrachloroethane,1,1,2,2 Tetrachloroethylene Toluene	
Dichloroethylene (trans-1,2-) Dichloropropane (1,2) Ethyl benzene Ethylene dibromode (EDB) Isopropyl benzene Methyl ethyl ketone Methyl isobutyl ketone Methyl-tert-butyl-ether Methylene chloride Styrene Tetrachloroethane,1,1,1,2 Tetrachloroethylene Toluene	
Dichloroethene (trans-1,2-) Dichloropropane (1,2) Ethyl benzene Ethylene dibromode (EDB) Isopropyl benzene Methyl ethyl ketone Methyl isobutyl ketone Methyl-tert-butyl-ether Methylene chloride Styrene Tetrachloroethane, 1, 1, 1, 2 Tetrachloroethylene Toluene	
Dichloropropane (1,2) Ethyl benzene Ethylene dibromode (EDB) Isopropyl benzene Methyl ethyl ketone Methyl isobutyl ketone Methyl-tert-butyl-ether Methylene chloride Styrene Tetrachloroethane,1,1,1,2 Tetrachloroethylene Toluene	
Ethylene dibromode (EDB) Isopropyl benzene Methyl ethyl ketone Methyl isobutyl ketone Methyl-tert-butyl-ether Methylene chloride Styrene Tetrachloroethane,1,1,1,2 Tetrachloroethylene Toluene	
Ethylene dibromode (EDB) Isopropyl benzene Methyl ethyl ketone Methyl isobutyl ketone Methyl-tert-butyl-ether Methylene chloride Styrene Tetrachloroethane,1,1,1,2 Tetrachloroethylene Toluene	
Isopropyl benzene Methyl ethyl ketone Methyl isobutyl ketone Methyl-tert-butyl-ether Methylene chloride Styrene Tetrachloroethane,1,1,1,2 Tetrachloroethylene Toluene	
Methyl ethyl ketone Methyl isobutyl ketone Methyl-tert-butyl-ether Methylene chloride Styrene Tetrachloroethane,1,1,1,2 Tetrachloroethane,1,1,2,2 Tetrachloroethylene Toluene	
Methyl isobutyl ketone Methyl-tert-butyl-ether Methylene chloride Styrene Tetrachloroethane, 1, 1, 1, 2 Tetrachloroethane, 1, 1, 2, 2 Tetrachloroethylene Toluene	
Methyl-tert-butyl-ether Methylene chloride Styrene Tetrachloroethane,1,1,1,2 Tetrachloroethane,1,1,2,2 Tetrachloroethylene Toluene	
Methylene chloride Styrene Tetrachloroethane,1,1,1,2 Tetrachloroethane,1,1,2,2 Tetrachloroethylene Toluene	-
Styrene Tetrachloroethane, 1, 1, 1, 2 - Tetrachloroethylene Toluene	
Tetrachloroethane,1,1,1,2 - Tetrachloroethane,1,1,2,2 Tetrachloroethylene Toluene	
Tetrachloroethane,1,1,2,2 Tetrachloroethylene Toluene	
Toluene	
Trichloroethane 1 1 1	
1 11 CHO 10 C C C C C C C C C C C C C C C C C C	
Trichloroethane,1,1,2-	
Trichloroethylene	
Vinyl chloride	
Xylenes	
Xylenes (total) 25(PPB)	
SEMIVOLATILES	
Acenaphthene	
Acenaphthylene	
Anthracene	
Benzo(a)anthracene .	

ra	<u> </u>	T	
Benzo(a)pyrene		ļ	
Benzo(b)fluoranthene		,	
Benzo(g,h,i)perylene			
Benzo(k)fluoranthene			
Biphenyl,1,1-			
Bis(2-ethylhexyl)phthalate			
Bis(2-chloroethyl)ether			
Bis(2-chloroisipropyl)ether			
Chloroaniline, 4- (p-)			
Chlorophenol, 2-			
Chrysene			
Dibenzo(a,h)anthracene			
Dichlorobenzene (all isomers)			
Dichlorobenzene, 1,2- (o-DCB)		l .	
Dichlorobenzene, 1,2- (o-DCB)			
Dichlorobenzene, 1,4- (p-DCB)			
Dichlorobenzidine, 3,3-			
Dichlorophenol, 2,4-			
Diethlhexyl phthalate			
Diethyl phthalate			
Dimethyl phenol, 2,4-			
Dimethyl phthalate			
Dinitrophenol, 2,4-			
Dinitrotoluene, 2,4-			
Fluoranthene			
Fluorene			
Hexachlorobenzene			
Hexachlorobutadiene			
Hexachloroethane			
Ideno(1,2,3-cd)pyrene			
Methyl naphthalene, 2-			930(PPB)
Naphthalene			220(PPB)
Pentachlorophenol			
Phenanthrene			330(PPB)
Phenol .			, , , , , , , , , , , , , , , , , , , ,
Pyrene			
Trichlorobenzene, 1,2,4-			
Trichlorophenol, 2,4,5-		<u> </u>	
Trichloropheńol, 2,4,6-			
PESTCIDES/PCBs			
Chlorodane			
Dieldrin			
Polychlorinated biphenyls (PCBs)			
INORGANICS			
Antimony			
Arsenic	j 		
Barium		!	0 12
Beryllium		1	
Cadmium			
<u></u>	L		·

Chromium	
Chromium III (Trivalent)	
Chromium VI (Hexavalent)	
Copper	
Cyanide	
Lead	
Manganese	
Mercury	
Nickel	
Selenium	0.04
Silver	
Thallium	
Vanadium	
Zinc	
TPH	760

TANK NO. 45 W3	
OUPOTANOS	FIELD ANALYTICAL
SUBSTANCE	FIELD ANALYTICAL DETECTIONS
	(mg/kg except as
	otherwise noted)
VOLATILE ORGANICS	47(000)
Acetone	17(PPB)
Benzene	
Bromodichloromethane	
Bromoform	
Bromomethane	
Carbon tetrachloride	
Chlorobenzene	
Chloroform	
Dibromochloromethane	
Dibromochloropropane (DBCP)	
Dichloroethane (1,1-)	
Dichloroethane (1,2-)	
Dichchloroethylene (1,1-)	
Dichloroethene (1,1-)	
Dichloroethylene (cis-1,2,-)	
Dichloroethene (cis-1,2-)	
Dichloroethylene (trans-1,2-)	
Dichloroethene (trans-1,2-)	
Dichloropropane (1,2)	
Ethyl benzene	25(PPB)
Ethylene dibromode (EDB)	
Isopropyl benzene	13(PPB)
Methyl ethyl ketone	
Methyl isobutyl ketone	
Methyl-tert-butyl-ether	
Methylene chloride	
Styrene	
Tetrachloroethane,1,1,1,2	
Tetrachloroethane,1,1,2,2	
Tetrachloroethylene	
Toluene	25(PPB)
Trichloroethane, 1, 1, 1-	
Trichloroethane, 1, 1, 2-	
Trichloroethylene	
Vinyl chloride	
Xylenes	
Xylenes (total)	34(PPB)
SEMIVOLATILES	
Acenaphthene	
Acenaphthylene	
Anthracene	
Benzo(a)anthracene	

Benzo(a)pyrene			
Benzo(b)fluoranthene			
Benzo(g,h,i)perylene			
Benzo(k)fluoranthene			
Biphenyl, 1, 1-			
Bis(2-ethylhexyl)phthalate			
Bis(2-chloroethyl)ether			
Bis(2-chloroisipropyl)ether			
Chloroaniline, 4- (p-)			
Chlorophenol, 2-	·		
Chrysene			
Dibenzo(a,h)anthracene			
Dichlorobenzene (all isomers)			
Dichlorobenzene, 1,2- (o-DCB)			
Dichlorobenzene, 1,2- (o-DCB)			
Dichlorobenzene, 1,4- (p-DCB)			
Dichlorobenzidine, 3,3-			
Dichlorophenol, 2,4-			
Diethihexyl phthalate			
Diethyl phthalate	,	<u> </u>	
Dimethyl phenol, 2,4-			
Dimethyl phthalate		<u> </u>	
Dinitrophenol, 2,4-			
Dinitrotoluene, 2,4-		<u> </u>	
Fluoranthene			
Fluorene			
Hexachlorobenzene			
Hexachlorobutadiene			
Hexachloroethane			
Ideno(1,2,3-cd)pyrene			
Methyl naphthalene, 2-			1,600(PPB)
Naphthalene			410(PPB)
Pentachlorophenol			410(11 0)
Phenanthrene			320(PPB)
Phenol			320(1.07
Pyrene		-	
Trichlorobenzene, 1,2,4-			
Trichlorophenol, 2,4,5-			
Trichlorophenol, 2,4,6-			
PESTCIDES/PCBs			
Chlorodane			
Dieldrin			
Polychlorinated biphenyls (PCBs)			
INORGANICS			
Antimony			
Arsenic			
Barium			0 34
Beryllium	 -	;	
Cadmium			-· ·
	<u> </u>		L

Sheet1

Chromium	
Chromium III (Trivalent)	
Chromium VI (Hexavalent)	l
Copper	
Cyanide	
Lead	0.005
Manganese	
Mercury	
Nickel	
Selenium	0.03
Silver	
Thallium	
Vanadium	
Zinc	
TPH	1,200

TANK NO. 45 W4	T	
SUBSTANCE		FIELD ANALYTICAL
		DETECTIONS
		(mg/kg except as
		otherwise noted)
VOLATILE ORGANICS		•
Acetone		17(PPB)
Benzene		
Bromodichloromethane		
Bromoform		
Bromomethane		
Carbon tetrachloride		
Chlorobenzene		
Chloroform		
Dibromochloromethane		
Dibromochloropropane (DBCP)		
Dichloroethane (1,1-)		
Dichloroethane (1,2-)		/
Dichchloroethylene (1,1-)		
Dichloroethene (1,1-)		
Dichloroethylene (cis-1,2,-)		
Dichloroethene (cis-1,2-)		
Dichloroethylene (trans-1,2-)		
Dichloroethene (trans-1,2-)		
Dichloropropane (1,2)		
Ethyl benzene		12(PPB)
Ethylene dibromode (EDB)		
Isopropyl benzene		14(PPB)
Methyl ethyl ketone		
Methyl isobutyl ketone		
Methyl-tert-butyl-ether		
Methylene chloride		
Styrene		
Tetrachloroethane,1,1,1,2		
Tetrachloroethane,1,1,2,2		
Tetrachloroethylene		
Toluene		7(PPB)
Trichloroethane, 1, 1, 1-		
Trichloroethane, 1, 1, 2-		
Trichloroethylene		
Vinyl chloride		
Xylenes		
Xylenes (total)		71(PPB)
SEMIVOLATILES		
Acenaphthene		
Acenaphthylene	-	
Anthracene		
Benzo(a)anthracene	1	

1

Benzo(a)pyrene		
Benzo(b)fluoranthene		
Benzo(g,h,i)perylene		-
Benzo(k)fluoranthene		 [
Biphenyl,1,1-		
Bis(2-ethylhexyl)phthalate		
Bis(2-chloroethyl)ether		
Bis(2-chloroisipropyl)ether		
Chloroaniline, 4- (p-)		
Chlorophenol, 2-		
Chrysene		
Dibenzo(a,h)anthracene		
Dichlorobenzene (all isomers)		
Dichlorobenzene, 1,2- (o-DCB)		
Dichlorobenzene, 1,2- (o-DCB)		
Dichlorobenzene, 1,4- (p-DCB)		
Dichlorobenzidine, 3,3-		 - -
Dichlorophenol, 2,4-		
Diethlhexyl phthalate		,
Diethyl phthalate		
Dimethyl phenol, 2,4-		
Dimethyl phthalate		
Dinitrophenol, 2,4-		
Dinitrotoluene, 2,4-		
Fluoranthene		
Fluorene		
Hexachlorobenzene		
Hexachlorobutadiene		
Hexachloroethane		
Ideno(1,2,3-cd)pyrene Methyl naphthalene, 2-		1,100(PPB)
Naphthalene		320(PPB)
Pentachlorophenol		320(FFB)
Phenanthrene		350(PPB)
Phenol		330(FFB)
Pyrene		
Trichlorobenzene, 1,2,4-		
Trichlorophenol, 2,4,5-		
Trichlorophenol, 2,4,6-		
PESTCIDES/PCBs		
Chlorodane		-
Dieldrin		
Polychlorinated biphenyls (PCBs)		
INORGANICS		
Antimony		
Arsenic		
Barium		0 44
Beryllium		
Cadmium		
Caumum	1	

Chromium	
Chromium III (Trivalent)	
Chromium VI (Hexavalent)	
Copper	
Cyanide	
Lead	
Manganese	
Mercury	
Nickel	
Selenium	0.04
Silver	
Thallium	
Vanadium	
Zinc	
<u>TPH</u>	1,300

TANK FARM 4 SURFACE AREA CALCULATION

Tank Specifications:

Inside diameter	116 feet
Interior height	33.5 feet
Column diameter (34 columns/tank)	20 inches

Surface area calculations:

Wall:

```
SAw = 2\pi rh
= 2\pi (58)(33.5)
= 12,208 sq. ft.
```

Columns:

```
SAc = 2\pi \text{rh}(34)
= 2\pi (.833)(33.5)(34)
= 5,964 sq. ft.
```

Floor:

```
Saf = \pi Radius squared - (34 × Area of Column Base)

= \pi Radius Squared - [(34) (\pi Radius Squared)]

= \pi (58 × 58) - [(34)(\pi)(.833 × .833)]

= 10,494 sq. ft.
```

Total Surface Area:

```
Sat = SAw+SAc+SAf
=12,208 + 5,964 + 10,494
= 28,666 sq. ft.
```

Percent of surface area total for the wall:

```
12,208 sq. ft./28,666 sq. ft. = X/100 = 42.6\%
```

Percent of surface area total for the columns:

5,964 sq. ft./28,666 sq. ft. = X/100 = 20.8%

Percent of surface area total for the floor:

10,494 sq. ft./28,666 sq. ft. = X/100 = 36.6%

Surface area weighted calculation:

= (.426)(avg. wall TPH)+(.208)(column TPH)+(.366)(floor TPH)

Tank TPH by surface area weighted calculation:

Tank No. 45 = 1,019.2 ppm TPH

APPENDIX K TEST PIT ANALYTICAL RESULTS

July 17, 1997

Foster Wheeler Environmental Corp. Attn: Mr. Mark Gouveia P.O.Box 4749 Middletown, RI 02842

RE: Client Project #DO# 13F, Tank Farm #4

Would a faule

Lab Project #D1091

Dear Mr. Gouveia:

Enclosed please find the data report of the required analyses for the samples associated with the above referenced project. If you have any questions regarding this report, please call me.

We appreciate your business.

Sincerely

Edward A. Lawler

Laboratory Operation Manager



Client: Foster Wheeler Environmental Corp.

Client Project: DO# 13F, Tank Farm #4

Lab Project: D1091

Date samples received: 7/11/97

Project Narrative

This data report includes the analysis results for two (2) soil samples that were received from the Tank Farm #4 site from Foster Wheeler Environmental Corp. on July 11, 1997. Analyses were performed per specification in the Chain of Custody form. For reference, a copy of the Mitkem Sample Log-In form is included for cross-referencing the client sample ID and laboratory sample ID.

All of the analyses were performed according to method specifications. No unusual observation was made for the analyses.

This data report has been reviewed and is authorized for release as evidenced by the signature below.

Light

Edward A. Lawler

Laboratory Operations Manager

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Analysis Report: Total Petroleum Hydrocarbons

Client Foster Wheeler Environmental Corp.

Analysis: Method 418.1

Matrix: Soil

Concentration in: mg/kg, dry weight basis

<u>Lab ID</u>	Client ID	Result	% Solid	Reporting <u>Limit</u>	Analysis Date
D1091-01	TP-TK46	ND	90	24	7/16/97
D1091-02	TP-TK45	ND	92	24	7/16/97
QA/QC					
Method Blar	nk				
I0715-B1		ND	22		7/16/97
	Spike (% Recovery)			•	
10715-LCS	S1	122			7/16/97
ND = Not D	etected				

ND = Not Detected

002

D1091-01



Analysis Report: Semivolatile Organic Compounds

Client: Foster Wheeler Environmental Corp.

Client ID: TP-TK45

Lab ID: D1091-02

Analysis: Method 8270

Analysis Date: 7/16/97 Matrix: Soil, 92% solids

Concentration in: ug/kg, dry weight basis

Dilution: 1

		Reporting
<u>Analyte</u>	<u>Results</u>	<u>Limits</u>
Phenol	ND	360
bis(2-Chloroethyl)ether	ND	360
2-Chlorophenol	ND	360
1,3-Dichlorobenzene	ND	360
1,4-Dichlorobenzene	ND	360
1,2-Dichlorobenzene	ND	360
2-Methylphenol	ND	360
2,2'-oxybis(1-Chloropropane)	ND	360
4-Methylphenol	ND	360
n-Nitroso-di-n-propylamine	ND	360
Hexachloroethane	ND	360
Nitrobenzene	ND	360
Isophorone	ND	360
2-Nitrophenol	ND	360
2,4-Dimethylphenol	ND	360
bis(2-Chloroethoxy)methane	ND	360
2,4-Dichlorophenol	ND	360
1,2,4-Trichlorobenzene	ND	360
Naphthalene	8 6 J	360
4-Chloroaniline	ND	360
Hexachlorobutadiene	ND	360
4-Chloro-3-methylphenol	ND	360
2-Methylnaphthalene	ND	360
Hexachlorocyclopentadiene	ND	360
2,4,6-Trichlorophenol	ND	360
2,4,5-Trichlorophenol	ND	900
2-Chloronaphthalene	ND	360
2-Nitroaniline	ND	900
Dimethylphthalate	ND	360
Acenaphthylene	ND	360
2,6-Dinitrotoluene	ND	360
3-Nitroaniline	ND	900
Acenaphthene	48 J	360
2,4-Dinitrophenol	ND	900
4-Nitrophenol	ND	900
Dibenzofuran	49 J	360
2,4-Dinitrotoluene	ND	360

)



Client ID: TP-TK45 Lab ID: D1091-02

		Reporting	
Analyte	Results	<u>Limits</u>	
Diethylphthalate	ND	360	
Fluorene	57 J	3 60	
4-Chiorophenyi-phenyiether	ND	3 60	
4-Nitroaniline	ND	900	
4,6-Dinitro-2-methylphenol	ND	900	
n-Nitrosodiphenylamine	ND	3 60	
4-Bromophenyl-phenylether	ND	36 0	
Hexachlorobenzene	ND	360	
Pentachlorophenol	ND	900	
Phenanthrene	180 J	3 60	
Anthracene	49 J	360	
Di-n-butylphthalate	ND	360	
Carbazole	ND	360	
Fluoranthene	170 J	360	
Pyrene	91 J	360	
Butylbenzylphthalate	ND	360	
Benzo(a)anthracene	51 J	360	
Chrysene	69 J	360	
3,3'-Dichlorobenzidine	ND	360	
bis(2-Ethylhexyl)phthalate	ND	360	
Di-n-octylphthalate	ND	36 0	
Benzo(b)fluoranthene	61 J 🐧	360	
Benzo(k)fluoranthene	33 J	360	
Benzo(a)pyrene	39 J	360	
Indeno(1,2,3-cd)pyrene	17 J	360	
Dibenz(a,h)anthracene	ND	360	
Benzo(g,h,i)perylene	ND	360	
		QC Batch:S0714	-B1
Surrogate Recovery:			
2-Fluorophenol	51%		
Phenol-d5	62%		
2-Chlorophenol-d4	57%		
2,4,6-Tribromophenol	76%		
1,2-Dichlorobenzene-d4	22%		
Nitrobenzene-d5	49%		
2-Fluorobiphenyl	62%		
p-Terphenyl-d14	65%		



Analysis Report: Volatile Organic Compounds

Client: Foster Wheeler Environmental Corp.

Client ID: TP-TK45

Lab ID: D1091-02 Analysis: Method 8260 Analysis Date: 7/13/97 Matrix: Soil, 88% solids

Concentration in: ug/kg, dry weight basis

Dilution: 1

		Reporting
<u>Analyte</u>	<u>Results</u>	<u>Limits</u>
Dichlorodifluoromethane	ND	6
Chloromethane	ND	6
Vinyl chloride	ND	6
Bromomethane	ND	6
Chloroethane	ND	6
Trichlorofluoromethane	ND	6
1,1-Dichloroethene	ND	6
Carbon disulfide	ND	6
lodomethane	ND	6
Acetone	ND	6
Methylene chloride	ND	6
trans-1,2-Dichloroethene	ND	6
1,1-Dichloroethane	ND	6
Vinyl acetate	ND	6
2,2-Dichloropropane	ND	6
cis-1,2-Dichloroethene	ND	6
Methyl ethyl ketone	ND	6
Bromochioromethane	ND	. 6
Chloroform	ND	6
1,1,1-Trichloroethane	ND	6
Carbon tetrachloride	ND	6
1,1-Dichloropropene	ND	6
Benzene	ND	6
1,2-Dichloroethane	ND	6
Trichloroethene	ND	6
1,2-Dichloropropane	ND	6
Dibromomethane	ND	6
Bromodichloromethane	ND	· 6
2-Chloroethyl vinyl ether	ND	6
cis-1,3-Dichloropropene	ND	6
4-Methyl-2-pentanone	ND	6
Toluene	['] ND	6



Client ID: TP-TK45 Lab ID: D1091-02

trans-1,3-Dichloropropene	<u>Analytė</u>	Results	Reporting <u>Limits</u>	
1,1,2-Trichloroethane		<u> </u>		
Tetrachloroethene 1,3-Dichloropropane ND 6 2-Hexanone ND 6 Dibromochloromethane ND 6 1,2-Dibromoethane (EDB) ND 6 Chlorobenzene ND 6 Chlorobenzene ND 6 Ethylbenzene ND 6 Ethylbenzene ND 6 Styrene ND 6 Styrene ND 6 Isopropylbenzene ND 6 In1,1,2-Tetrachloroethane ND 6 In2,3-Trichloropropane ND 6 In3,5-Trimethylbenzene ND In3,5-Trimethylbenzene ND In3,5-Trimethylbenzene ND In3,1-Cal-Trimethylbenzene ND In3,1-Cal-Trimethylbenz	trans-1,3-Dichloropropene	ND	6	
1,3-Dichloropropane ND 6 2-Hexanone ND 6 Dibromochloromethane ND 6 1,2-Dibromoethane (EDB) ND 6 Chlorobenzene ND 6 1,1,2-Tetrachloroethane ND 6 Ethylbenzene ND 6 Xylenes, total ND 6 Styrene ND 6 Bromoform ND 6 Isopropylbenzene ND 6 Bromobenzene ND 6 Bromobenzene ND 6 Bromobenzene ND 6 I,1,2,2-Tetrachloroethane ND 6 1,2,1,2-Tetrachloropropane ND 6 1,2,1,2-Tetrachloropropane ND 6 1,2,1,2-Trichloropropane ND 6 4-Chlorotoluene ND 6 4-Chlorotoluene ND 6 1,3,5-Trimethylbenzene ND 6 tet-Butylbenzene ND 6	1,1,2-Trichloroethane	ND	6	
2-Hexanone	Tetrachloroethene	ND	6	
Dibromochloromethane ND 6 1,2-Dibromochlane (EDB) ND 6 1,1,1,2-Tetrachloroethane ND 6 Ethylbenzene ND 6 Ethylbenzene ND 6 Ethylbenzene ND 6 Ethylbenzene ND 6 Styrene ND 6 Bromoform ND 6 Isopropylbenzene ND 6 Bromobenzene ND 6 Bromobenzene ND 6 I,1,2,2-Tetrachloroethane ND 6 I,1,2,2-Tetrachloroethane ND 6 I,2,3-Trichloropropane ND 6 I,3,5-Trimethylbenzene ND 6 I,3,5-Trimethylbenzene ND 6 I,3,5-Trimethylbenzene ND 6 I,2,4-Trimethylbenzene ND 6 I,2,4-Trimethylbenzene ND 6 I,3-Dichlorobenzene ND 6 I,3-Dichlorobenzene ND 6 I,3-Dichlorobenzene ND 6 I,4-Dichlorobenzene ND 6 I,4-Dichlorobenzene ND 6 I,2-Dichlorobenzene ND 6 I,2-Dichlorobenzene ND 6 I,2-Dichlorobenzene ND 6 I,2-Dichlorobenzene ND 6 I,2-J-Trichlorobenzene ND 6 Naphthalene ND 6 Naphthalene ND 6 Naphthalene ND 6 Surrogate Recovery: Calcal	1,3-Dichloropropane	ND	6	
1,2-Dibromoethane (EDB)	2-Hexanone	ND	6	
Chlorobenzene ND 6 1,1,1,2-Tetrachloroethane ND 6 Ethylbenzene ND 6 Xylenes, total ND 6 Styrene ND 6 Bromoform ND 6 Isopropylbenzene ND 6 Bromobenzene ND 6 1,1,2,2-Tetrachloroethane ND 6 1,1,2,2-Tetrachloroethane ND 6 1,1,2,2-Tetrachloroethane ND 6 1,1,2,2-Tetrachloroethane ND 6 1,2,3-Trichloropropane ND 6 1,2,3-Trichloropropane ND 6 1,2-Frightlylbenzene ND 6 4-Chlorotoluene ND 6 1,3-5-Trimethylbenzene ND 6 tetr-Butylbenzene ND 6 1,3-5-Trimethylbenzene ND 6 sec-Butylbenzene ND 6 1,3-Dichlorobenzene ND 6 4-Isopropyltoluene ND	Dibromochloromethane	ND	6	
1,1,1,2-Tetrachloroethane ND 6 Ethylbenzene ND 6 Xylenes, total ND 6 Styrene ND 6 Bromoform ND 6 Isopropylbenzene ND 6 Bromobenzene ND 6 Isopropylbenzene ND 6 1,1,2,2-Tetrachloroethane ND 6 1,2,3-Trichloropropane ND 6 1,2,3-Trichloropropane ND 6 1,2-Olichlorotoluene ND 6 2-Chlorotoluene ND 6 4-Chlorotoluene ND 6 1,3-5-Trimethylbenzene ND 6 4-Trimethylbenzene ND 6 1,2-4-Trimethylbenzene ND 6 1,2-Trimethylbenzene ND 6 1,3-Dichlorobenzene ND 6 1,3-Dichlorobenzene ND 6 1,4-Dichlorobenzene ND 6 1,2-Dichlorobenzene ND 6	1,2-Dibromoethane (EDB)	ND	6	
Ethylbenzene	Chlorobenzene	ND	6	
Xylenes, total ND 6 Styrene ND 6 Bromoform ND 6 Isopropylbenzene ND 6 Bromobenzene ND 6 1,1,2,2-Tetrachloroethane ND 6 1,2,3-Trichloropropane ND 6 n-Propylbenzene ND 6 1,2,3-Trichloropropane ND 6 4-Chlorotoluene ND 6 4-Chlorotoluene ND 6 4-Chlorotoluene ND 6 4-Chlorotoluene ND 6 1,3,5-Trimethylbenzene ND 6 1,2-4-Trimethylbenzene ND 6 1,2-4-Trimethylbenzene ND 6 1,3-5-Trimethylbenzene ND 6 1,3-Dichlorobenzene ND 6 1,3-Dichlorobenzene ND 6 1,4-Dichlorobenzene ND 6 1,2-Dichlorobenzene ND 6 1,2-Dichlorobenzene ND 6 <td>1,1,1,2-Tetrachloroethane</td> <td>ND</td> <td>6</td> <td></td>	1,1,1,2-Tetrachloroethane	ND	6	
Styrene ND 6 Bromoform ND 6 Isopropylbenzene ND 6 Bromobenzene ND 6 1,1,2,2-Tetrachloroethane ND 6 1,2,3-Trichloropropane ND 6 n-Propylbenzene ND 6 r-Propylbenzene ND 6 2-Chlorotoluene ND 6 4-Chlorotoluene ND 6 1,3,5-Trimethylbenzene ND 6 1,2,4-Trimethylbenzene ND 6 1,2,4-Trimethylbenzene ND 6 1,2-Trimethylbenzene ND 6 1,3-Dichlorobenzene ND 6 1,3-Dichlorobenzene ND 6 1,2-Dichlorobenzene ND 6 1,4-Dichlorobenzene ND 6 1,2-Dichlorobenzene ND 6 1,2-Dichlorobenzene ND 6 1,2,3-Trichlorobenzene ND 6 Hexachlorobenzene ND <td< td=""><td>Ethylbenzene</td><td>ND</td><td>6</td><td></td></td<>	Ethylbenzene	ND	6	
Bromoform	Xylenes, total	ND	6	
Isopropylbenzene	Styrene	ND	· 6	
Bromobenzene	Bromoform	ND	6	!
1,1,2,2-Tetrachloroethane ND 6 1,2,3-Trichloropropane ND 6 n-Propylbenzene ND 6 2-Chlorotoluene ND 6 4-Chiorotoluene ND 6 4-Chiorotoluene ND 6 1,3,5-Trimethylbenzene ND 6 1,3-Frimethylbenzene ND 6 1,2-Trimethylbenzene ND 6 1,3-Dichlorobenzene ND 6 1,3-Dichlorobenzene ND 6 1,4-Dichlorobenzene ND 6 1,2-Dichlorobenzene ND 6 1,2-Dichlorobenzene ND 6 1,2-Trichlorobenzene ND 6 Hexachlorobutadiene ND 6 1,2,3-Trichlorobenzene ND 6 MTBE ND 6 Naphthalene T ND 6 Surrogate Recovery: QC Batch: V1B0713A 1,2-Dichloroethane-d4 100% 100% Toluene-d8 99% 100%	Isopropylbenzene	ND	6	
1,2,3-Trichloropropane ND 6 n-Propylbenzene ND 6 2-Chlorotoluene ND 6 4-Chlorotoluene ND 6 1,3,5-Trimethylbenzene ND 6 tert-Butylbenzene ND 6 1,2,4-Trimethylbenzene ND 6 1,2,4-Trimethylbenzene ND 6 1,2,4-Trimethylbenzene ND 6 1,3-Dichlorobenzene ND 6 1,3-Dichlorobenzene ND 6 1,4-Dichlorobenzene ND 6 1,2-Dichlorobenzene ND 6 n-Butylbenzene ND 6 1,2-Dibromo-3-chloropropane ND 6 1,2-Dibromo-3-chloropropane ND 6 1,2-Trichlorobenzene ND 6 MTBE ND 6 Naphthalene ND 6 Surrogate Recovery: QC Batch: V1B0713A 1,2-Dichloroethane-d4 100% Toluene-d8 99%	· · · · ·	ND	6	
n-Propylbenzene ND 6 2-Chlorotoluene ND 6 4-Chlorotoluene ND 6 1,3,5-Trimethylbenzene ND 6 tert-Butylbenzene ND 6 1,2,4-Trimethylbenzene ND 6 1,2,4-Trimethylbenzene ND 6 1,3-Dichlorobenzene ND 6 1,3-Dichlorobenzene ND 6 4-Isopropyltoluene ND 6 1,4-Dichlorobenzene ND 6 1,2-Dichlorobenzene ND 6 1,2-Dibromo-3-chloropropane ND 6 1,2,4-Trichlorobenzene ND 6 1,2,4-Trichlorobenzene ND 6 Hexachlorobutadiene ND 6 1,2,3-Trichlorobenzene ND 6 MTBE ND 6 Naphthalene ND 6 Surrogate Recovery: QC Batch: V1B0713A 1,2-Dichloroethane-d4 100% Toluene-d8 99%	1,1,2,2-Tetrachloroethane	ND	6	
2-Chlorotoluene ND 6 4-Chlorotoluene ND 6 1,3,5-Trimethylbenzene ND 6 tert-Butylbenzene ND 6 1,2,4-Trimethylbenzene ND 6 sec-Butylbenzene ND 6 1,3-Dichlorobenzene ND 6 4-Isopropyltoluene ND 6 1,4-Dichlorobenzene ND 6 1,2-Dichlorobenzene ND 6 n-Butylbenzene ND 6 1,2-Dibromo-3-chloropropane ND 6 1,2-A-Trichlorobenzene ND 6 Hexachlorobutadiene ND 6 1,2,3-Trichlorobenzene ND 6 MTBE ND 6 Naphthalene ND 6 Surrogate Recovery: QC Batch: V1B0713A 1,2-Dichloroethane-d4 100% Toluene-d8 99%	1,2,3-Trichloropropane	ND	6	
2-Chlorotoluene ND 6 4-Chlorotoluene ND 6 1,3,5-Trimethylbenzene ND 6 tert-Butylbenzene ND 6 1,2,4-Trimethylbenzene ND 6 sec-Butylbenzene ND 6 1,3-Dichlorobenzene ND 6 4-Isopropyltoluene ND 6 1,4-Dichlorobenzene ND 6 1,2-Dichlorobenzene ND 6 n-Butylbenzene ND 6 1,2-Dibromo-3-chloropropane ND 6 1,2-A-Trichlorobenzene ND 6 Hexachlorobutadiene ND 6 1,2,3-Trichlorobenzene ND 6 MTBE ND 6 Naphthalene Incompany of the property of the p	The state of the s	ND	6	
1,3,5-Trimethylbenzene ND 6 tert-Butylbenzene ND 6 1,2,4-Trimethylbenzene ND 6 sec-Butylbenzene ND 6 1,3-Dichlorobenzene ND 6 4-Isopropyltoluene ND 6 1,4-Dichlorobenzene ND 6 1,2-Dichlorobenzene ND 6 n-Butylbenzene ND 6 1,2-Dibromo-3-chloropropane ND 6 1,2,4-Trichlorobenzene ND 6 Hexachlorobutadiene ND 6 1,2,3-Trichlorobenzene ND 6 MTBE ND 6 Naphthalene ND 6 Surrogate Recovery: ND 6 1,2-Dichloroethane-d4 100% Toluene-d8 99%	· ·	ND	6	
tert-Butylbenzene ND 6 1,2,4-Trimethylbenzene ND 6 sec-Butylbenzene ND 6 1,3-Dichlorobenzene ND 6 4-Isopropyltoluene ND 6 1,4-Dichlorobenzene ND 6 1,2-Dichlorobenzene ND 6 n-Butylbenzene ND 6 1,2-Dibromo-3-chloropropane ND 6 1,2,4-Trichlorobenzene ND 6 Hexachlorobutadiene ND 6 1,2,3-Trichlorobenzene ND 6 MTBE ND 6 Naphthalene ND 6 Surrogate Recovery: ND 6 1,2-Dichloroethane-d4 100% Toluene-d8 99%	4-Chlorotoluene	ND	6	
tert-Butylbenzene ND 6 1,2,4-Trimethylbenzene ND 6 sec-Butylbenzene ND 6 1,3-Dichlorobenzene ND 6 4-Isopropyltoluene ND 6 1,4-Dichlorobenzene ND 6 1,2-Dichlorobenzene ND 6 n-Butylbenzene ND 6 1,2-Dibromo-3-chloropropane ND 6 1,2,4-Trichlorobenzene ND 6 Hexachlorobutadiene ND 6 1,2,3-Trichlorobenzene ND 6 MTBE ND 6 Naphthalene ND 6 Surrogate Recovery: ND 6 1,2-Dichloroethane-d4 100% Toluene-d8 99%	1,3,5-Trimethylbenzene	ND	6	
1,2,4-Trimethylbenzene ND 6 sec-Butylbenzene ND 6 1,3-Dichlorobenzene ND 6 4-Isopropyltoluene ND 6 1,4-Dichlorobenzene ND 6 1,2-Dichlorobenzene ND 6 n-Butylbenzene ND 6 1,2-Dibromo-3-chloropropane ND 6 1,2,4-Trichlorobenzene ND 6 Hexachlorobutadiene ND 6 1,2,3-Trichlorobenzene ND 6 MTBE ND 6 Naphthalene ND 6 Surrogate Recovery: ND 6 1,2-Dichloroethane-d4 100% Toluene-d8 99%	•	ND	6	
sec-Butylbenzene ND 6 1,3-Dichlorobenzene ND 6 4-Isopropyltoluene ND 6 1,4-Dichlorobenzene ND 6 1,2-Dichlorobenzene ND 6 n-Butylbenzene ND 6 1,2-Dibromo-3-chloropropane ND 6 1,2,4-Trichlorobenzene ND 6 Hexachlorobutadiene ND 6 1,2,3-Trichlorobenzene ND 6 MTBE ND 6 Naphthalene ND 6 Surrogate Recovery: QC Batch: V1B0713A 1,2-Dichloroethane-d4 100% Toluene-d8 99%	· · · · · · · · · · · · · · · · · · ·	ND	6	
1,3-Dichlorobenzene ND 6 4-Isopropyltoluene ND 6 1,4-Dichlorobenzene ND 6 1,2-Dichlorobenzene ND 6 n-Butylbenzene ND 6 1,2-Dibromo-3-chloropropane ND 6 1,2,4-Trichlorobenzene ND 6 Hexachlorobutadiene ND 6 1,2,3-Trichlorobenzene ND 6 MTBE ND 6 Naphthalene ND 6 Surrogate Recovery: ND 6 1,2-Dichloroethane-d4 100% Toluene-d8 99%		ND	6	
1,4-Dichlorobenzene ND 6 1,2-Dichlorobenzene ND 6 n-Butylbenzene ND 6 1,2-Dibromo-3-chloropropane ND 6 1,2,4-Trichlorobenzene ND 6 Hexachlorobutadiene ND 6 1,2,3-Trichlorobenzene ND 6 MTBE ND 6 Naphthalene ND 6 Surrogate Recovery: QC Batch: V1B0713A 1,2-Dichloroethane-d4 100% Toluene-d8 99%	· · · · · · · · · · · · · · · · · · ·	ND	6	
1,2-Dichlorobenzene ND 6 n-Butylbenzene ND 6 1,2-Dibromo-3-chloropropane ND 6 1,2,4-Trichlorobenzene ND 6 Hexachlorobutadiene ND 6 1,2,3-Trichlorobenzene ND 6 MTBE ND 6 Naphthalene ND 6 Surrogate Recovery: QC Batch: V1B0713A 1,2-Dichloroethane-d4 100% Toluene-d8 99%	4-Isopropyltoluene	ND	6	
n-Butylbenzene ND 6 1,2-Dibromo-3-chloropropane ND 6 1,2,4-Trichlorobenzene ND 6 Hexachlorobutadiene ND 6 1,2,3-Trichlorobenzene ND 6 MTBE ND 6 Naphthalene ND 6 Surrogate Recovery: QC Batch: V1B0713A 1,2-Dichloroethane-d4 100% Toluene-d8 99%	1,4-Dichlorobenzene	ND	6	
1,2-Dibromo-3-chloropropane 1,2,4-Trichlorobenzene ND 6 Hexachlorobutadiene ND 6 1,2,3-Trichlorobenzene ND 6 MTBE ND 6 Naphthalene ND 6 Surrogate Recovery: 1,2-Dichloroethane-d4 Toluene-d8 99%	1,2-Dichlorobenzene	ND	6	
1,2,4-Trichlorobenzene ND 6 Hexachlorobutadiene ND 6 1,2,3-Trichlorobenzene ND 6 MTBE ND 6 Naphthalene ND 6 Surrogate Recovery: QC Batch: V180713A 1,2-Dichloroethane-d4 100% Toluene-d8 99%	n-Butylbenzene	ND	6	
Hexachlorobutadiene ND 6 1,2,3-Trichlorobenzene ND 6 MTBE ND 6 Naphthalene ND 6 Surrogate Recovery: QC Batch: V1B0713A 1,2-Dichloroethane-d4 100% Toluene-d8 99%	1,2-Dibromo-3-chloropropane	ND	6	
1,2,3-Trichlorobenzene ND 6 MTBE ND 6 Naphthalene ND 6 Surrogate Recovery: QC Batch: V1B0713A 1,2-Dichloroethane-d4 100% Toluene-d8 99%	1,2,4-Trichlorobenzene	ND	6	
MTBE ND 6 Naphthalene ND 6 Surrogate Recovery: QC Batch: V1B0713A 1,2-Dichloroethane-d4 100% Toluene-d8 99%	Hexachlorobutadiene	ND	6	
Naphthalene ND 6 Surrogate Recovery: QC Batch: V1B0713A 1,2-Dichloroethane-d4 100% Toluene-d8 99%	1,2,3-Trichlorobenzene	ND	6	
Surrogate Recovery: 1,2-Dichloroethane-d4 Toluene-d8 QC Batch: V1B0713A 100% 99%	MTBE	ND	6	
1,2-Dichloroethane-d4 100% Toluene-d8 99%	Naphthalene	ND	6	
Toluene-d8 99%	Surrogate Recovery:		QC Batch:	V1B0713A
		100%		
Bromofluorobenzene 97%	Toluene-d8	99%		
	Bromofluorobenzene	97%		



Analysis Report: Total Metals

Client: Foster Wheeler Environmental Corp.

Client ID: TP-TK45 Lab ID: D1091-02

Analysis Method: 7471A (Mercury)

6010A (Others)

Matrix: Soil, 92% Solids

Concentration in: mg/kg, dry weight basis

Analysis Date: 7/15/97

	_	Reporting
<u>Analyte</u>	<u>Results</u>	<u>Limit</u>
Arsenic	8	4
	-	•
Barium	25	1
Cadmium	0.7	0.1
Chromium	13	1
Lead	29	3
Mercury	ND	0.3
Selenium	ND	2
Silver	ND	2

QC Batch: 0711PBS



Analysis Report: Semivolatile Organic Compounds

Client: Foster Wheeler Environmental Corp.

Client ID:

Lab ID: Method Blank, S0714-B1

Analysis: Method 8270

Analysis Date: 7/15/97

Matrix: Soil

Concentration in: ug/kg

Dilution: 1

Phenol ND 330	Analyte	Results	Reporting <u>Limits</u>
2-Chlorophenol ND 330 1,3-Dichlorobenzene ND 330 1,4-Dichlorobenzene ND 330 1,2-Dichlorobenzene ND 330 2-Methylphenol ND 330 2,2-oxybis(1-Chloropropane) ND 330 4-Methylphenol ND 330 n-Nitroso-di-n-propylamine ND 330 Hexachloroethane ND 330 Hexachloroethane ND 330 Nitrobenzene ND 330 Isophorone ND 330 2-Nitrophenol ND 330 2,4-Dimethylphenol ND 330 2,4-Directhoxy)methane ND 330 2,4-Dichlorophenol ND 330 2,4-Dichlorophenol ND 330 1,2,4-Trichlorobenzene ND 330 Naphthalene ND 330 4-Chloroa-3-methylphenol ND 330 4-Chloroa-brutadiene ND 330 2,4,5-Trichlo	Phenol	ND	330
2-Chlorophenol ND 330 1,3-Dichlorobenzene ND 330 1,4-Dichlorobenzene ND 330 1,2-Dichlorobenzene ND 330 2-Methylphenol ND 330 2,2-oxybis(1-Chloropropane) ND 330 4-Methylphenol ND 330 n-Nitroso-di-n-propylamine ND 330 Hexachloroethane ND 330 Hexachloroethane ND 330 Nitrobenzene ND 330 Isophorone ND 330 2-Nitrophenol ND 330 2,4-Dimethylphenol ND 330 2,4-Directhoxy)methane ND 330 2,4-Dichlorophenol ND 330 2,4-Dichlorophenol ND 330 1,2,4-Trichlorobenzene ND 330 Naphthalene ND 330 4-Chloroa-3-methylphenol ND 330 4-Chloroa-brutadiene ND 330 2,4,5-Trichlo	bis(2-Chloroethyl)ether	ND	330
1,4-Dichlorobenzene ND 330 1,2-Dichlorobenzene ND 330 2-Methylphenol ND 330 2,2'-oxybis(1-Chloropropane) ND 330 4-Methylphenol ND 330 n-Nitroso-di-n-propylamine ND 330 n-Nitrosenzene ND 330 Nitrobenzene ND 330 Nitrobenzene ND 330 Isophorone ND 330 2-Nitrophenol ND 330 2-Nitrophenol ND 330 2,4-Dichloroethoxy)methane ND 330 2,4-Dichlorophenol ND 330 2,4-Trichloroethoxy)methane ND 330 2,4-Trichlorobenzene ND 330 ND 330 330 2,4-Trichlorobenzene ND 330 4-Chloroa-3-methylphenol ND 330 4-Chloroa-3-methylphenol ND 330 2,4-E-Trichlorophenol ND 330 2,4-5-Tr		ND	330
1,2-Dichlorobenzene ND 330 2-Methylphenol ND 330 2,2'-oxybis(1-Chloropropane) ND 330 4-Methylphenol ND 330 n-Nitroso-di-n-propylamine ND 330 Hexachloroethane ND 330 Hexachloroethane ND 330 Nitrobenzene ND 330 Isophorone ND 330 2-Nitrophenol ND 330 2,4-Dimethylphenol ND 330 2,4-Dichlorophenol ND 330 2,4-Dichlorophenol ND 330 1,2,4-Trichlorobenzene ND 330 Naphthalene ND 330 4-Chloroaniline ND 330 4-Chloroa-3-methylphenol ND 330 4-Methylnaphthalene ND 330 4-Methylnaphthalene ND 330 2,4,5-Trichlorophenol ND 330 2,4,5-Trichlorophenol ND 330 2,-Nitroani	1,3-Dichlorobenzene	ND	330
2-Methylphenol ND 330 2,2'-oxybis(1-Chloropropane) ND 330 4-Methylphenol ND 330 n-Nitroso-di-n-propylamine ND 330 Hexachloroethane ND 330 Nitrobenzene ND 330 Isophorone ND 330 2-Nitrophenol ND 330 2-Nitrophenol ND 330 2,4-Dimethylphenol ND 330 2,4-Dimethylphenol ND 330 2,4-Dichlorophenol ND 330 2,4-Dichlorophenol ND 330 1,2,4-Trichlorobenzene ND 330 Naphthalene ND 330 4-Chloroaniline ND 330 4-Chloroaniline ND 330 4-Chloro-3-methylphenol ND 330 2-Methylnaphthalene ND 330 2,4,6-Trichlorophenol ND 330 2,4,6-Trichlorophenol ND 330 2-Nitroaniline	1,4-Dichlorobenzene	ND	330
2,2'-oxybis(1-Chloropropane) ND 330 4-Methylphenol ND 330 n-Nitroso-di-n-propylamine ND 330 Hexachloroethane ND 330 Nitrobenzene ND 330 Isophorone ND 330 2-Nitrophenol ND 330 2,4-Dimethylphenol ND 330 2,4-Dichloroethoxy)methane ND 330 2,4-Dichlorophenol ND 330 1,2,4-Trichlorophenol ND 330 1,2,4-Trichlorobenzene ND 330 Naphthalene ND 330 4-Chloroaniline ND 330 4-Chloroaniline ND 330 4-Chloro-3-methylphenol ND 330 4-Methylnaphthalene ND 330 4-Methylnaphthalene ND 330 2,4,6-Trichlorophenol ND 330 2,4,5-Trichlorophenol ND 330 2,4,5-Trichlorophenol ND 330 2-Nitroaniline ND 330 2-Nitroaniline <t< td=""><td>1,2-Dichlorobenzene</td><td>ND</td><td>330</td></t<>	1,2-Dichlorobenzene	ND	330
4-Methylphenol ND 330 n-Nitroso-di-n-propylamine ND 330 Hexachloroethane ND 330 Nitrobenzene ND 330 Isophorone ND 330 2-Nitrophenol ND 330 2,4-Dimethylphenol ND 330 is(2-Chloroethoxy)methane ND 330 2,4-Dichlorophenol ND 330 1,2,4-Trichlorobenzene ND 330 1,2,4-Trichlorobenzene ND 330 1,2,4-Trichlorobenzene ND 330 4-Chloroaniline ND 330 4-Chloroaniline ND 330 4-Chloro-3-methylphenol ND 330 2-Methylnaphthalene ND 330 2-Methylnaphthalene ND 330 2,4,6-Trichlorophenol ND 330 2,4,5-Trichlorophenol ND 330 2,4,5-Trichlorophenol ND 330 2-Chloronaphthalene ND 330 2-Nitroaniline ND 330 Acenaphthylene	2-Methylphenol	ND	330
n-Nitroso-di-n-propylamine ND 330 Hexachloroethane ND 330 Nitrobenzene ND 330 Isophorone ND 330 2-Nitrophenol ND 330 2,4-Dimethylphenol ND 330 bis(2-Chloroethoxy)methane ND 330 2,4-Dichlorophenol ND 330 1,2,4-Trichlorobenzene ND 330 Naphthalene ND 330 4-Chloroaniline ND 330 Hexachlorobutadiene ND 330 4-Chloro-3-methylphenol ND 330 4-Chloro-3-methylphenol ND 330 4-Methylnaphthalene ND 330 4-Methylnaphthalene ND 330 2,4,6-Trichlorophenol ND 330 2,4,5-Trichlorophenol ND 330 2,-Chloronaphthalene ND 330 2-Nitroaniline ND 330 Acenaphthylene ND 330 2,6-D	2,2'-oxybis(1-Chloropropane)	ND	330
Hexachloroethane ND 330 Nitrobenzene ND 330 Isophorone ND 330 2-Nitrophenol ND 330 2,4-Dimethylphenol ND 330 bis(2-Chloroethoxy)methane ND 330 2,4-Dichlorophenol ND 330 1,2,4-Trichlorobenzene ND 330 Naphthalene ND 330 4-Chloroaniline ND 330 4-Chloroa-3-methylphenol ND 330 4-Chloro-3-methylphenol ND 330 2-Methylnaphthalene ND 330 4-Chloro-3-methylphenol ND 330 2-Methylnaphthalene ND 330 2-Methylnaphthalene ND 330 2,4,6-Trichlorophenol ND 330 2,4,5-Trichlorophenol ND 830 2-Chloronaphthalene ND 830 2-Nitroaniline ND 330 Acenaphthylene ND 330 2,4-Dini	4-Methylphenol	ND	330
Nitrobenzene ND 330 Isophorone ND 330 2-Nitrophenol ND 330 2,4-Dimethylphenol ND 330 bis(2-Chloroethoxy)methane ND 330 2,4-Dichlorophenol ND 330 1,2,4-Trichlorobenzene ND 330 Naphthalene ND 330 4-Chloroaniline ND 330 4-Chloroaniline ND 330 4-Chloro-3-methylphenol ND 330 2-Methylnaphthalene ND 330 2-Methylnaphthalene ND 330 2,4,6-Trichlorophenol ND 330 2,4,5-Trichlorophenol ND 330 2,4,5-Trichlorophenol ND 330 2-Nitroaniline ND 330 2-Nitroaniline ND 330 Acenaphthylene ND 330 2,6-Dinitrotoluene ND 330 3-Nitroaniline ND 330 Acenaphthene <	n-Nitroso-di-n-propylamine	ND	330
Isophorone	Hexachloroethane	ND	330
2-Nitrophenol ND 330 2,4-Dimethylphenol ND 330 bis(2-Chloroethoxy)methane ND 330 2,4-Dichlorophenol ND 330 1,2,4-Trichlorobenzene ND 330 Naphthalene ND 330 4-Chloroaniline ND 330 4-Chloro-3-methylphenol ND 330 4-Chloro-3-methylphenol ND 330 2-Methylnaphthalene ND 330 2-Methylnaphthalene ND 330 2,4,6-Trichlorophenol ND 330 2,4,5-Trichlorophenol ND 330 2-Chloronaphthalene ND 330 2-Nitroaniline ND 330 Acenaphthylene ND 330 2,6-Dinitrotoluene ND 330 3-Nitroaniline ND 830 Acenaphthene ND 830 4-Oinitrophenol ND 830 Dibenzofuran ND 830	Nitrobenzene	ND	330
2,4-Dimethylphenol ND 330 bis(2-Chloroethoxy)methane ND 330 2,4-Dichlorophenol ND 330 1,2,4-Trichlorobenzene ND 330 Naphthalene ND 330 4-Chloroaniline ND 330 4-Chlorobutadiene ND 330 4-Chloro-3-methylphenol ND 330 2-Methylnaphthalene ND 330 2-Methylnaphthalene ND 330 2,4,6-Trichlorophenol ND 330 2,4,5-Trichlorophenol ND 830 2-Chloronaphthalene ND 330 2-Nitroaniline ND 330 Acenaphthylene ND 330 2,6-Dinitrotoluene ND 330 3-Nitroaniline ND 830 Acenaphthene ND 330 2,4-Dinitrophenol ND 830 4-Nitrophenol ND 830 Dibenzofuran ND 330	Isophorone	ND	330
bis(2-Chloroethoxy)methane ND 330 2,4-Dichlorophenol ND 330 1,2,4-Trichlorobenzene ND 330 Naphthalene ND 330 4-Chloroaniline ND 330 Hexachlorobutadiene ND 330 4-Chloro-3-methylphenol ND 330 2-Methylnaphthalene ND 330 2-Methylnaphthalene ND 330 2-Methylnaphthalene ND 330 2,4,6-Trichlorophenol ND 330 2,4,5-Trichlorophenol ND 830 2-Chloronaphthalene ND 330 2-Nitroaniline ND 830 Dimethylphthalate ND 330 2,6-Dinitrotoluene ND 330 3-Nitroaniline ND 830 Acenaphthene ND 830 2,4-Dinitrophenol ND 830 4-Nitrophenol ND 830 Dibenzofuran ND 330	2-Nitrophenol	ND	330
2,4-Dichlorophenol ND 330 1,2,4-Trichlorobenzene ND 330 Naphthalene ND 330 4-Chloroaniline ND 330 Hexachlorobutadiene ND 330 4-Chloro-3-methylphenol ND 330 2-Methylnaphthalene ND 330 Hexachlorocyclopentadiene ND 330 2,4,6-Trichlorophenol ND 330 2,4,5-Trichlorophenol ND 830 2-Chloronaphthalene ND 330 2-Nitroaniline ND 830 Dimethylphthalate ND 330 Acenaphthylene ND 330 2,6-Dinitrotoluene ND 330 3-Nitroaniline ND 830 Acenaphthene ND 330 2,4-Dinitrophenol ND 830 4-Nitrophenol ND 830 Dibenzofuran ND 330	2,4-Dimethylphenol	ND	330
1,2,4-Trichlorobenzene ND 330 Naphthalene ND 330 4-Chloroaniline ND 330 Hexachlorobutadiene ND 330 4-Chloro-3-methylphenol ND 330 2-Methylnaphthalene ND 330 Hexachlorocyclopentadiene ND 330 2,4,6-Trichlorophenol ND 330 2,4,5-Trichlorophenol ND 830 2-Chloronaphthalene ND 330 2-Nitroaniline ND 830 Dimethylphthalate ND 330 Acenaphthylene ND 330 2,6-Dinitrotoluene ND 330 3-Nitroaniline ND 830 Acenaphthene ND 830 2,4-Dinitrophenol ND 830 4-Nitrophenol ND 830 Dibenzofuran ND 330	bis(2-Chloroethoxy)methane	ND	330
Naphthalene ND 330 4-Chloroaniline ND 330 Hexachlorobutadiene ND 330 4-Chloro-3-methylphenol ND 330 2-Methylnaphthalene ND 330 Hexachlorocyclopentadiene ND 330 2,4,6-Trichlorophenol ND 330 2,4,5-Trichlorophenol ND 830 2-Chloronaphthalene ND 330 2-Nitroaniline ND 830 Dimethylphthalate ND 330 Acenaphthylene ND 330 2,6-Dinitrotoluene ND 330 3-Nitroaniline ND 830 Acenaphthene ND 330 2,4-Dinitrophenol ND 830 4-Nitrophenol ND 830 Dibenzofuran ND 330	2,4-Dichlorophenol	ND	330
4-Chloroaniline ND 330 Hexachlorobutadiene ND 330 4-Chloro-3-methylphenol ND 330 2-Methylnaphthalene ND 330 Hexachlorocyclopentadiene ND 330 2,4,6-Trichlorophenol ND 330 2,4,5-Trichlorophenol ND 830 2-Chloronaphthalene ND 330 2-Nitroaniline ND 830 Dimethylphthalate ND 330 Acenaphthylene ND 330 2,6-Dinitrotoluene ND 330 3-Nitroaniline ND 830 Acenaphthene ND 330 2,4-Dinitrophenol ND 830 4-Nitrophenol ND 830 Dibenzofuran ND 330	1,2,4-Trichlorobenzene	ND	330
Hexachlorobutadiene ND 330 4-Chloro-3-methylphenol ND 330 2-Methylnaphthalene ND 330 Hexachlorocyclopentadiene ND 330 2,4,6-Trichlorophenol ND 330 2,4,5-Trichlorophenol ND 830 2-Chloronaphthalene ND 330 2-Nitroaniline ND 830 Dimethylphthalate ND 330 Acenaphthylene ND 330 2,6-Dinitrotoluene ND 330 3-Nitroaniline ND 830 Acenaphthene ND 330 2,4-Dinitrophenol ND 830 4-Nitrophenol ND 830 Dibenzofuran ND 330	Naphthalene	ND	330
4-Chloro-3-methylphenol ND 330 2-Methylnaphthalene ND 330 Hexachlorocyclopentadiene ND 330 2,4,6-Trichlorophenol ND 330 2,4,5-Trichlorophenol ND 830 2-Chloronaphthalene ND 330 2-Nitroaniline ND 830 Dimethylphthalate ND 330 Acenaphthylene ND 330 2,6-Dinitrotoluene ND 330 3-Nitroaniline ND 830 Acenaphthene ND 330 2,4-Dinitrophenol ND 830 4-Nitrophenol ND 830 Dibenzofuran ND 330	4-Chloroaniline	ND	330
2-Methylnaphthalene ND 330 Hexachlorocyclopentadiene ND 330 2,4,6-Trichlorophenol ND 330 2,4,5-Trichlorophenol ND 830 2-Chloronaphthalene ND 330 2-Nitroaniline ND 830 Dimethylphthalate ND 330 Acenaphthylene ND 330 2,6-Dinitrotoluene ND 830 Acenaphthene ND 830 Acenaphthene ND 830 2,4-Dinitrophenol ND 830 4-Nitrophenol ND 830 Dibenzofuran ND 330	Hexachlorobutadiene	ND	330
2-Methylnaphthalene ND 330 Hexachlorocyclopentadiene ND 330 2,4,6-Trichlorophenol ND 330 2,4,5-Trichlorophenol ND 830 2-Chloronaphthalene ND 330 2-Nitroaniline ND 830 Dimethylphthalate ND 330 Acenaphthylene ND 330 2,6-Dinitrotoluene ND 830 Acenaphthene ND 830 Acenaphthene ND 830 2,4-Dinitrophenol ND 830 4-Nitrophenol ND 830 Dibenzofuran ND 330	4-Chloro-3-methylphenol	ND	330
2,4,6-Trichlorophenol ND 330 2,4,5-Trichlorophenol ND 830 2-Chloronaphthalene ND 330 2-Nitroaniline ND 830 Dimethylphthalate ND 330 Acenaphthylene ND 330 2,6-Dinitrotoluene ND 330 3-Nitroaniline ND 830 Acenaphthene ND 330 2,4-Dinitrophenol ND 830 4-Nitrophenol ND 830 Dibenzofuran ND 330		ND	330
2,4,5-Trichlorophenol ND 830 2-Chloronaphthalene ND 330 2-Nitroaniline ND 830 Dimethylphthalate ND 330 Acenaphthylene ND 330 2,6-Dinitrotoluene ND 330 3-Nitroaniline ND 830 Acenaphthene ND 330 2,4-Dinitrophenol ND 830 4-Nitrophenol ND 830 Dibenzofuran ND 330	Hexachlorocyclopentadiene	ND	330
2-Chloronaphthalene ND 330 2-Nitroaniline ND 830 Dimethylphthalate ND 330 Acenaphthylene ND 330 2,6-Dinitrotoluene ND 330 3-Nitroaniline ND 830 Acenaphthene ND 330 2,4-Dinitrophenol ND 830 4-Nitrophenol ND 830 Dibenzofuran ND 330	2,4,6-Trichlorophenol	ND	330
2-Nitroaniline ND 830 Dimethylphthalate ND 330 Acenaphthylene ND 330 2,6-Dinitrotoluene ND 330 3-Nitroaniline ND 830 Acenaphthene ND 330 2,4-Dinitrophenol ND 830 4-Nitrophenol ND 830 Dibenzofuran ND 330	2,4,5-Trichlorophenol	ND	830
Dimethylphthalate ND 330 Acenaphthylene ND 330 2,6-Dinitrotoluene ND 330 3-Nitroaniline ND 830 Acenaphthene ND 330 2,4-Dinitrophenol ND 830 4-Nitrophenol ND 830 Dibenzofuran ND 330	2-Chloronaphthalene	ND	330
Acenaphthylene ND 330 2,6-Dinitrotoluene ND 330 3-Nitroaniline ND 830 Acenaphthene ND 330 2,4-Dinitrophenol ND 830 4-Nitrophenol ND 830 Dibenzofuran ND 330	2-Nitroaniline	ND	830
2,6-Dinitrotoluene ND 330 3-Nitroaniline ND 830 Acenaphthene ND 330 2,4-Dinitrophenol ND 830 4-Nitrophenol ND 830 Dibenzofuran ND 330	Dimethylphthalate	ND	330
3-Nitroaniline ND 830 Acenaphthene ND 330 2,4-Dinitrophenol ND 830 4-Nitrophenol ND 830 Dibenzofuran ND 330	•	ND	330
Acenaphthene ND 330 2,4-Dinitrophenol ND 830 4-Nitrophenol ND 830 Dibenzofuran ND 330	2,6-Dinitrotoluene	ND	330
2,4-Dinitrophenol ND 830 4-Nitrophenol ND 830 Dibenzofuran ND 330	_	ND	830
4-NitrophenolND830DibenzofuranND330	· · · · · · · · · · · · · · · · · · ·	ND	330
Dibenzofuran ND 330		ND	830
330	4-Nitrophenol	ND	830
2,4-Dinitrotoluene ND 330		ND	330
	2,4-Dinitrotoluene	ND	330



Client ID: Lab ID: Method Blank, S0714-B1

		Reporting	
Analyte	Results	<u>Limits</u>	
Diethylphthalate	ND	330	
Fluorene	ND	330	
4-Chlorophenyl-phenylether	ND	330	
4-Nitroaniline	ND	830	
4,6-Dinitro-2-methylphenol	ND	830	
n-Nitrosodiphenylamine	ND	330	
4-Bromophenyl-phenylether	ND	330	
Hexachlorobenzene	ND	330	
Pentachlorophenol	ND	830	
Phenanthrene	ND	330	
Anthracene	ND	330	
Di-n-butylphthalate	ND	330	
Carbazole	ND	330	
Fluoranthene	ND	330	
Pyrene	ND	330	
Butylbenzylphthalate	ND	330	
Benzo(a)anthracene	ND	330	
Chrysene	ND	330	
3,3'-Dichlorobenzidine	ND	330	
bis(2-Ethylhexyl)phthalate	ND	330	
Di-n-octylphthalate	ND	330	
Benzo(b)fluoranthene	ND	330	
Benzo(k)fluoranthene	ND	330	
Benzo(a)pyrene	ND	330	
Indeno(1,2,3-cd)pyrene	ND	330	
Dibenz(a,h)anthracene	ND	330	
Benzo(g,h,i)perylene	ND	330	
		QC Batch:S0714-	B1
Surrogate Recovery:			
2-Fluorophenol	60%		
Phenol-d5	64%		
2-Chlorophenol-d4	68%		
2,4,6-Tribromophenol	84%		
1,2-Dichlorobenzene-d4	65%		
Nitrobenzene-d5	59%		
2-Fluorobiphenyl	76%		
p-Terphenyl-d14	82%		



Analysis R port: Semivolatile Organic Compounds

Lab Control Summary

Client: Foster Wheeler Environmental Corp.

Lab ID for Blank Spike: S0714-L1

Analysis: Method 8270

Matrix: Solid

Analysis Date for Blank Spike: 7/15/97

Analyte	% Recovery
Phenol	56
2-Chlorophenol	60
1,4-Dichlorobenzene	52
n-Nitroso-di-n-propylamine	48
1,2,4-Trichlorobenzene	65
4-Chioro-3-methylphenol	72
Acenaphthene	65
4-Nitrophenol	76
2,4-Dinitrotoluene	88
Pentachlorophenol	80
Pyrene	71

QC Batch: S0714-B1



Analysis Report: Volatile Organic Compounds

Client: Foster Wheeler Environmental Corp.

Client ID:

Lab ID: Method Blank, V1B0713A

Analysis: Method 8260

Analysis Date: 7/13/97

Matrix: Soil

Concentration in: ug/kg, dry weight basis

Dilution: 1

		Reporting
<u>Analyte</u>	<u>Results</u>	<u>Limits</u>
Diable and iff commothers	ND	e
Dichlorodifluoromethane		6
Chloromethane	ND	6
Vinyl chloride	ND	6
Bromomethane	ND	6
Chloroethane	ND	6
Trichlorofluoromethane	ND	6
1,1-Dichloroethene	ND	6
Carbon disulfide	ND	6
lodomethane	ND	6
Acetone	ND	6
Methylene chloride	ND	6
trans-1,2-Dichloroethene	ND	6
1,1-Dichloroethane	ND	6
Vinyl acetate	ND	6
2,2-Dichloropropane	ND	6
cis-1,2-Dichloroethene	ND	6
Methyl ethyl ketone	ND	6
Bromochloromethane	ND	6
Chloroform	ND	6
1,1,1-Trichloroethane	ND	6
Carbon tetrachloride	ND	6
1,1-Dichloropropene	ND	6
Benzene .	ND	6
1,2-Dichloroethane	ND	6
Trichloroethene	ND	6
1,2-Dichloropropane	ND	6
Dibromomethane	ND	6
Bromodichloromethane	ND	6
2-Chloroethyl vinyl ether	ND	6
cis-1,3-Dichloropropene	ND	6
4-Methyl-2-pentanone	ND	6
Toluene	ND	· 6



Client ID:

Lab ID: Method Blank, V1B0713A

		Reporting	
Analyte	Results	<u>Limits</u>	
trans-1,3-Dichloropropene	ND	6	
1,1,2-Trichloroethane	ND	6	
Tetrachioroethene	ND	6	
1,3-Dichloropropane	ND	6	
2-Hexanone	ND	6	
Dibromochloromethane	ND	6	
1,2-Dibromoethane (EDB)	ND	6	
Chlorobenzene	ND	6	
1,1,1,2-Tetrachloroethane	ND	6	
Ethylbenzene	ND	6	
Xylenes, total	ND	6	
Styrene	ND	6	
Bromoform	ND	6	
Isopropylbenzene	ND	6	
Bromobenzene	ND	6	
1,1,2,2-Tetrachloroethane	ND	6	
1,2,3-Trichloropropane	ND	6	
n-Propylbenzene	ND	6	
2-Chlorotoluene	ND	6	
4-Chlorotoluene	ND	6	
1,3,5-Trimethylbenzene	ND	6	
tert-Butylbenzene	ND	6	
1,2,4-Trimethylbenzene	ND	6	
sec-Butylbenzene	ND	6	
1,3-Dichlorobenzene	ND	6	
4-Isopropyltoluene	ND	6	
1,4-Dichlorobenzene	ND	6	
1,2-Dichlorobenzene	ND	6	
n-Butylbenzene	ND	6	
1,2-Dibromo-3-chloropropane	ND	6	
1,2,4-Trichlorobenzene	ND	6	
Hexachlorobutadiene	ND	6	
1,2,3-Trichlorobenzene	ND	6	
MTBE	ND	6	
Naphthalene	ND	6	
Surrogate Recovery:		QC Batch	: V1B0713A
1,2-Dichloroethane-d4	98%	=- = = = ==	
Toluene-d8	99%		
Bromofluorobenzene	99%		



Analysis Report: Total Metals

Client: Foster Wheeler Environmental Corp.

Client ID:

Lab ID: Prep Blank, 0711PBS Analysis Method: 7471A (Mercury) 6010A (Others) Matrix: Soil

Concentration in: mig/kg, dry weight basis

Analysis Date: 7/15/97

<u>Analyte</u>	Results	Reporting <u>Limit</u>
Arsenic	ND	1
Barium	ND	1
Cadmium	ND	0.1
Chromium	ND	1
Lead	ND	3
Mercury	ND	0.3
Selenium	ND	2
Silver	ND	2

QC Batch: 0711PBS



Analysis Report: Total Metals

Client: Foster Wheeler Environmental Corp.

Client ID:

Lab ID: Lab control Sample, 0711LCSS Analysis Method: 7471A (Mercury)

6010A (Others)

Matrix: Soil

Analysis Date: 7/15/97

Analyte	% Recovery
Arsenic	85
Barium	91
Cadmium	89
Chromium	94
Lead	83
Mercury	76
Selenium	78
Silver	98

QC Batch: 0711PBS

MITKEM CORPORATION

Sampled

7/10/97

Price

Received

Lab Project #:

D1091

IRU

Client Name:

Foster Wheeler

Client Pr j#:

DO#13F

Client PO#:

003195

Project Name: Tank Farm #4

Date Due:

1/1/1/19

T tal Price:

S

Project Mgr:

EL

Salesman:

PAS

Del Req'd:

NA

Completed?:

YES .

Lab ID -01

Client ID TP-TK46

Matrix

SL

Analysis

Bout Manda 16 16 23 VOCs 8260 + EDB

SVOCs 8270

TPH 418.1

-02

TP-TK45

SL

Weight Valendle Weller

VOCs 8260 + EDB SVOCs 8270

TPH 418.1

Logged In By:

Reviewed By:

Date: 7-11-97

Time: /2:/0

Met V-GC V-MS Sub

7/10/97 7/11/97

BNA Herb P/P

TPH

7/11/97

1

Wet

NOTES:

Rus Date distance COUR Wests distinct the Unter Mentle

ORIGINAL REPORT GOES TO:

Foster Wheeler Environmental Corp.

2 0

P.O. Box 4749

Middletown, R.I. 02842

Attn: Mark Gouveia

Phone: 401 842-6940

Fax: 401 842-6970

INVOICE GOES TO:

MITKEM CORPORATION

Sample Condition Form

Received By:	Date: 7/10/97	,	MITKEM Project #: D/09/		
Client Project Description/Number:	Tork Farm	#Y	Client To.	ster Whoder	
Condition:		Lab ID	Client ID	Remarks	
1) Custody Seal(s)	Present/Absent	01			
·	Intact/Broken	04			
2) Custody Seal Number(s)	-NA-			·	
9) Ohele of Custody Record(s)	Present/Absent				
8) Chain-of-Custody Record(s)	Flesenvausen				
4) Cooler Temperature	48				
Coolant Condition	<u>6000</u>			·	
5) Alroill(s)	Present/Absent	·	·		
Airbill Number(s)	•		·		
6) Sample Bottles	intact				
	Broken				
	Leaking				
	7/16/2				
7) Date Received	_///9/9/			· · · · · · · · · · · · · · · · · · ·	
8) Time Received	7/10/97 17:00			·	
				000	
9) Project Due Date				022	

Last Page of Data Report

TANK NO. 45		1	
SUBSTANCE	RESIDENTIAL	GA	FIELD ANALYTICAL
SUBSTANCE	(mg/kg)	Leachability	DETECTIONS
	(mg/kg)	(mg/kg except as	(mg/kg except as
		other wise noted)	otherwise noted)
VOLATILE ORGANICS		Outer Hise noted)	Outer Wise Moteur
Acetone	7,800		
Benzeně	2.5	0.2	
Bromodichloromethane	10	V.4	
Bromoform	81		
Bromomethane	0.8		
Carbon tetrachloride	1.5	0.4	
Chlorobenzene	210	3.2	
Chloroform	1.2	3.2	
Dibromochloromethane	7.6		
	0.5	· · · · · · · · · · · · · · · · · · ·	
Dibromochloropropane (DBCP)	920		•
Dichloroethane (1,1-) Dichloroethane (1,2-)	0.9	0.1	
	0.9	0.7	
Dichchloroethylene (1,1-)	0.2	<u> </u>	
Dichloroethene (1,1-)	0.2	1.7	
Dichloroethylene (cis-1,2,-)	630	1.7	
Dichloroethene (cis-1,2-)	630	3.3	
Dichloroethylene (trans-1,2-)	4 400	3.3	
Dichloroethene (trans-1,2-)	1,100	0.1	
Dichloropropane (1,2)	71	27	
Ethyl benzene		5.00E-04	
Ethylene dibromode (EDB)	0.01	5.00E-04	
Isopropyl benzene			
Methyl ethyl ketone	10,000		
Methyl isobutyl ketone	1200	0.9	
Methyl-tert-butyl-ether	390	0.9	
Methylene chloride	45		
Styrene	13	2.9	
Tetrachloroethane,1,1,1,2	2.2	<u> </u>	
Tetrachloroethane,1,1,2,2	1.3	0.1	
Tetrachioroethylene	12	0.1	
Toluene	190	32 11	
Trichloroethane,1,1,1-	540 3.6	0.1	
Trichloroethane,1,1,2-	13	0.1	
Trichloroethylene		0.2	
Vinyl chloride	0.02	540	
Xylenes (Ashal)	110	540	
Xylenes (total)	110		
SEMIVOLATILES	42		49 (DDD)
Acenaphthene	43		48 (PPB)
Acenaphthylene	23		40 (000)
Anthracene	35		49 (PPB)
Benzo(a)anthracene	0.9		51 (PPB)

Benzo(a)pyrene	0.4	240	39 (PPB)
Benzo(b)fluoranthene	0.9		61 (PPB)
Benzo(g,h,i)perylene	0.8		
Benzo(k)fluoranthene	0.9	· · · · · · · · · · · · · · · · · · ·	33 (PPB)
Biphenyl,1,1-	0.8		<u> </u>
Bis(2-ethylhexyl)phthalate	46		
Bis(2-chloroethyl)ether	0.6		
Bis(2-chloroisipropyl)ether	9.1		
Chloroaniline, 4- (p-)	310	· · · · · · · · · · · · · · · · · · ·	
Chlorophenol, 2-	50		
Chrysene	0.4	· · · · · · · · · · · · · · · · · · ·	69 (PPB)
Dibenzo(a,h)anthracene	0.4	· · · · · · · · · · · · · · · · · · ·	
Dichlorobenzene (all isomers)			
Dichlorobenzene, 1,2- (o-DCB)	510	41	
Dichlorobenzene, 1,2- (o-DCB)	430		
Dichlorobenzene, 1,4- (p-DCB)	27		
Dichlorobenzidine, 3,3-	1.4	-	
Dichlorophenol, 2,4-	30		
Diethlhexyl phthalate			
Diethyl phthalate	340	120	
Dimethyl phenol, 2,4-	1,400		
Dimethyl phthalate	1,900		
Dinitrophenol, 2,4-	160		
Dinitrotoluene, 2,4-	0.9		
Fluoranthene	20		170 (PPB)
Fluorene	28		57 (PPB)
Hexachlorobenzene	0.4		0. (/
Hexachlorobutadiene	8.2		
Hexachloroethane	46		
Ideno(1,2,3-cd)pyrene	0.9		17 (PPB)
Methyl naphthalene, 2-	123		
Naphthalene	54		86 (PPB)
Pentachlorophenol	5.3	0.8	00 (1.07
Phenanthrene	40	7.1	180 (PPB)
Phenol	6,000	•••	100 (11.5)
Pyrene	13		91 (PPB)
Trichlorobenzene, 1,2,4-	96		3.()
Trichlorophenol, 2,4,5-	330	140	
Trichlorophenol, 2,4,6-	58	• • •	
PESTCIDES/PCBs	+		
Chlorodane	0.5		
Dieldrin	0.04	1.4	
Polychlorinated biphenyls (PCBs)	10		
INORGANICS		10	
Antimony	10		
Arsenic	1.7	0.05	8
Barium	5,500		25
Beryllium	0 40	23	
Cadmium	39	0.03	0.7
Cachillati		9.00	<u> </u>

Chromium		0.03	
Chromium III (Trivalent)	1,400	1.1	
Chromium VI (Hexavalent)	390		13
Copper	3,100		
Cyanide	200		
Lead	150	2.4	29
Manganese	390	0.04	
Mercury	23		
Nickel	1,000	0.02	
Selenium	390	1	
Silver	200	0.6	
Thallium	5.5		
Vanadium	550	0.005	
Zinc	6,000		
TPH	500	500	

APPENDIX L BLAST REPORT



INDUSTRIAL EXPLOSIVES . WATER BLASTING . VACUUM TRUCK SERVICES

	BLAST REPORT	
DATE: <u>/0-0/</u>		BLAST TIME: 17:45
CUSTOMER: Fost	er Wheeler	JOB # 98-00-005
PROJECT LOCATIO	N. Tank Form =4- 4000	JOB # 48-00-003 Defense Hwy Portsmouth RI
SPECIFIC BLAST LO	McAlinden BLAS	
BLASTER: James	McAlinden BLAS	STERS LIC # 37-36
TYPE OF PROJECT:	Implode Diesel 37	orage lanks
TYPE OF MATERIA	L BLASTED: Concrete KY Party Cloudy TEMP 50	
WEATHER INFO: SI	KY Party Cloudy TEMP 30	WIND SP & DIR <u>33 %/W</u>
DRILL HOLE INFO:	HOLE SIZE: 1/2 NO. HOI DEPTH RANGE: 6" TO	LES 407 NO. ROWS]
	SUB DRILL O FT. BURD	EN 1.5 FT. SPACING 1 FT.
DISTANCE TO NEA	REST STRUCTURE	280 FT.
EXPLOSIVE INFO:	TOTAL OF EXPLOSIVES USE	0 361.5 LBS.
	BRAND AND TYPE ICI R	werditich 1600
	MIN LBS/HOLE _25 1	MAX. LBS/HOLE /
	MAX. LBS/DELAY22 DECK_	SOLID / STEMMIN 4"
INITIATION:	BRAND/TYPE ICT Masterdet 1 NO. DELAY USED 16	NO. CAPS USED 290
	TOTAL TIME FOR INITIATION	
PRIMACORD:	NO. OF FT. <u>584</u> SI	HOT LINE O FT.
CONTROL.	QUANTITY DISTANCE DS. MATS USED? No - Back F.	SEISMIC FT.
		011
SHOT PLAN: (SHO	Stay Curent · None. W DIRECTION)	CROSS SECTION
******	************	*******
0		•
0		
0		
•		2 stell
0		1/4x8 7 Steward
		1-16

NorthAmerican Industrial Services, Inc. 1240 Saratoga Road, Ballston Spa, New York 12020

EXPLOSIVE LOAD LIST NORTHAMERICAN INDUSTRIAL SERVICES

DATE	LOC.			∽JOB# <u>97-04</u>	-005
Power	Ditch 1000 EXP	LOSIVES			
TYPE	LOT NUMBER	QTY OUT	QTY IN	QTY USED	•
14×8	15JA97J1	439135	77.5 135	3615165	
256kilizuri	3100796	.3937'	3353	564'	
16' Ma	isterdet DET	ONATORS			
TYPE	LOT NUMBER	QTY OUT	QTY IN	QTY USED	
INST.	06MY97R2	37	35	18	
2	160E96R2	40	22	18	
2 3	13 NO 96 RZ	40	22	18	
4	13 NO96R2	40	22	18	
5	144096 R.Z	40 40	22	18	
6	CESEGERI	40	<i>2</i> 2	18	
7	17A29782	40	32	16	
8	12 M 1 97 PA	'	22	12	
10	02AP9722	40	93 2	81	
11	190596 RZ	40	22	18	
12	22AP97723	UO	33	18	
/3	190F.96R2	40	27 23	18	
14	10749682 03309681	40	33	HŞ H	
15	21JU 96RI	40 40	-	10	ł
16	21AP95 R2	46	22 22 32 49	18 18 19 40	1
18					
19					
20					
	,				
L				l	



INDUSTRIAL EXPLOSIVES • WATER BLASTING • VACUUM TRUCK SERVICES

N.A.I.S.
Shipping Papers

		tination: 4000 DEFENCE HAY HORTSMOUTH RIKIDE	••	From	Drive Drive : <u>NORT</u>	rs Signati	Erik LANIA CANIA CANIA ANY I	10.5EL.	
	Rou	ute to job site : MOST SAFI	E AN!	D DIRE	(Ro	NTES (787, 90,	495,114,2	4)
No. of boxes	HM	Description of articles and exceptions	Hazard Class	I.D. Number	Group Packing	Weight	Class or Rate	Labels Required (or exemption)	Check column
8	V	GEL DYNAMITE	1.4D	(D81]1	439135	A	173.631-4	V
18	V	ELECTRIC DETONATORD	1	1	11	1/24	A	173.631-4	/
Ĭ	√	DETONATING CORD	1.40	0289	<u> </u>	1870	Ċ	173691-4	✓
	plac Trar Per_ Driv	s is to certify that the above-named materiarded and are in proper condition for transportation. Placard Plac	sportation ls Required	according to	the applic	bed , packe able regula Placards su	tions of the ا سر	and labeled / Department of S / NO	

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NorthAmerican Industrial Services, Inc

1240 Saratoga Road, Ballston Spa. New York 12020

518 885 1820 FXX 514 885-7638



INDUSTRIAL EXPLOSIVES . WATER BLASTING . VACUUM TRUCK SERVICES

N.A.I.S.

		tination: 1/10 T		ing Paper	Driver Driver	rs Signat	ure <u>E</u>	STEIN	=
		tination: N.A. I S. 1240 SARATOGA BAIKSTON SPA, MY atte to job site: The Most		Direc	T, Leg	;Al A	PouTc	Huy. DE Island.	_
No. of boxes	НМ	Description of articles and exceptions	Hazard Class	I.D. Number	Group Packing	Weight	Class or Rate	Labels Required (or exemption)	_
2	V	Gel Dynamite	1.40	0081	11	345	A	173.63 1-4	-
18	1	Electric Detonators				1/2 165.	A.	173.631-4	
1	V		1	0289	ţı.	1816.	ح	173.63.1-4	_
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	placa Tran Per_ Driv	is to certify that the above-named material arded and are in proper condition for transciportation. CAry Hour Aca Placard ers Signature RGENCY RESPONSE LEEPHONE N	sportation a	according to	the applica	ible regula Placards su	tions of the I		_

Check

column

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> 518-885 1820 FAX 518 885-7638